

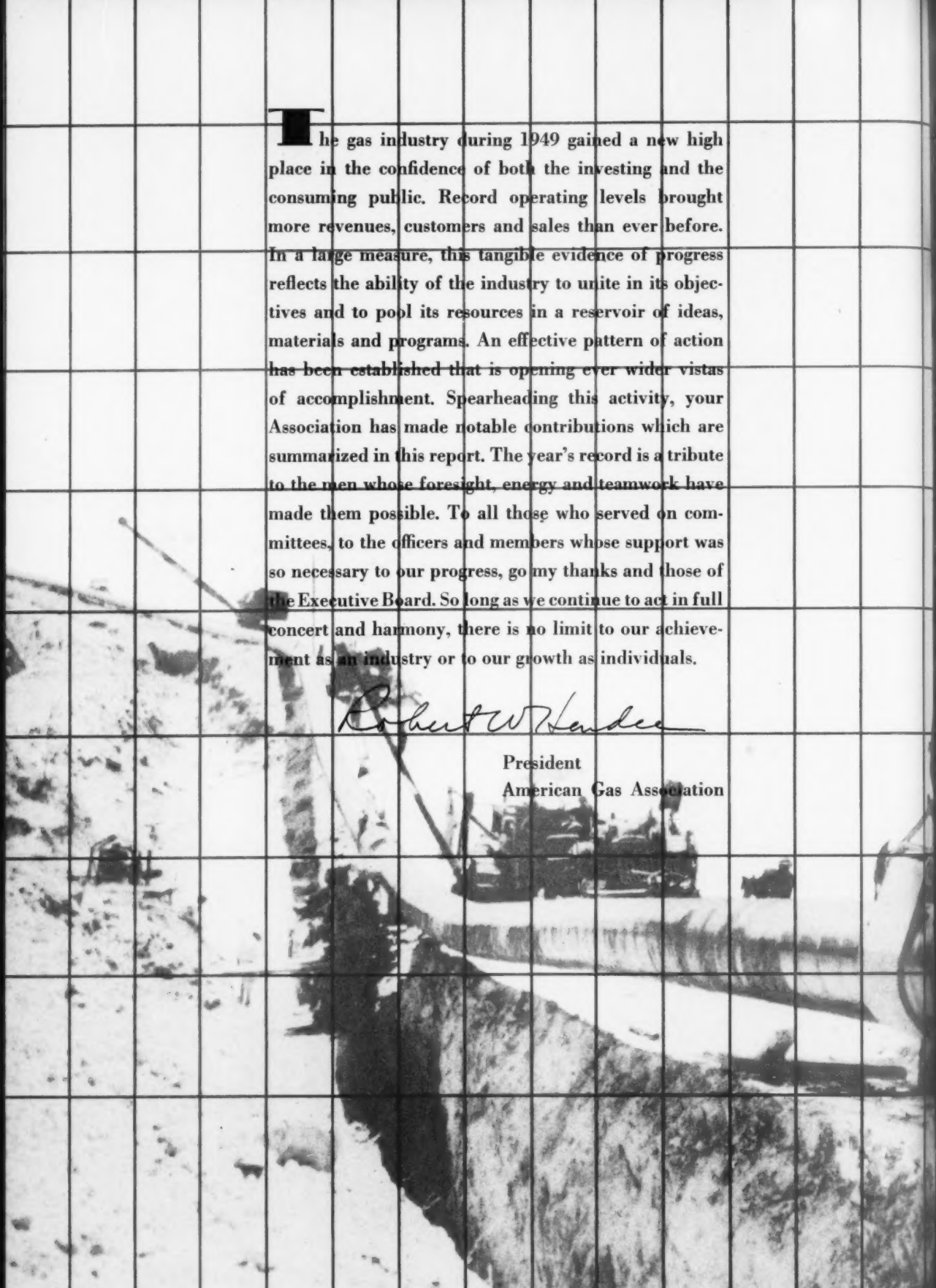
AMERICAN GAS ASSOCIATION

Monthly

Annual
Report
Issue



FEBRUARY 1950



The gas industry during 1949 gained a new high place in the confidence of both the investing and the consuming public. Record operating levels brought more revenues, customers and sales than ever before. In a large measure, this tangible evidence of progress reflects the ability of the industry to unite in its objectives and to pool its resources in a reservoir of ideas, materials and programs. An effective pattern of action has been established that is opening ever wider vistas of accomplishment. Spearheading this activity, your Association has made notable contributions which are summarized in this report. The year's record is a tribute to the men whose foresight, energy and teamwork have made them possible. To all those who served on committees, to the officers and members whose support was so necessary to our progress, go my thanks and those of the Executive Board. So long as we continue to act in full concert and harmony, there is no limit to our achievement as an industry or to our growth as individuals.

Robert W. Hendee

President
American Gas Association



AMERICAN GAS ASSOCIATION

Monthly Annual Report Issue

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Colorado Interstate Gas Company



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D. A. Hulley, President
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1948-1949



MANAGING DIRECTOR

H. Carl Wolf

H. Carl Wolf
American Gas Association



YOUR ASSOCIATION

THE AMERICAN GAS Association was organized in 1918 with the primary purpose "to promote and develop the gas industry and to coordinate its activities to the end that it may serve to the fullest possible extent the best interest of the public." Although A.G.A. has undergone steady expansion to keep pace with the industry's rapid growth, that objective has remained the cornerstone of its policy.

Your Association is one of the ten largest trade associations in the United States and the industry it serves ranks among the first half dozen in the country. During the past year the total budget of this voluntary, non-profit organization topped three million dollars. These funds were channeled into a wide variety of services and programs. In keeping with its traditional practice, only those activities were undertaken which individual gas companies could not do alone as well or as economically. Under the direction of an Executive Board elected by company members, the entire Association program was sensitive to the industry's most vital needs.

In view of the comprehensive nature of the Association's function, no simple chart could hope to portray the manifold activities undertaken by the various departments, sections, bureaus and individuals which together make up its permanent organization. However, the accompanying chart does provide a basic picture of the broad channels into which the A.G.A. dollar flowed in 1949.

Obviously no one year can reflect the full extent of the results accomplished. As some projects are completed, others are begun, while changing conditions dictate a shift in emphasis from year to year. Nonetheless 1949 was an eventful and notable year in the history of the Association. Concrete developments of a far-reaching nature underlined the value of cooperative endeavor and proved again that A.G.A. is a growing source of strength to the gas industry.

*BASED ON A.G.A. DUES AND PAR SUBSCRIPTIONS.
SEE FINANCIAL STATEMENT, PAGE 29

ADVERTISING

RESEARCH

PROMOTION

ADMINISTRATIVE

GENERAL ACTIVITIES

APPROVAL REQUIREMENTS

PUBLICATIONS

DEPARTMENTS AND SECTIONS

ONE DOLLAR*



WORKED HARD LAST YEAR

32¢



Millions of gas messages in top-rank magazines spurred appliance sales

26¢



Research brought improved gas-making processes, more efficient appliances

15¢



Nationwide integrated sales campaigns multiplied impact of gas promotion

11¢



A capable staff in New York, Cleveland and Los Angeles served the industry

7¢



Statistical, rate, utilization, safety and personnel work paid dividends

4¢



National gas appliance standards were set up, tested, studied and improved

3¢

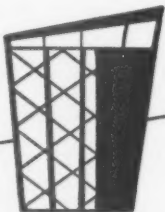


Attractive publications, from textbooks to newsletters, kept industry informed

2¢

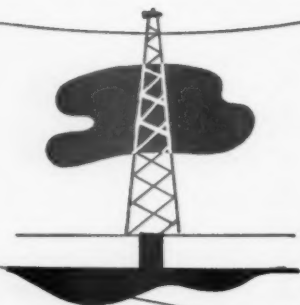


Operating and accounting problems were solved by committees and conferences



**MANUFACTURED
GAS DEPARTMENT**

**EXECUTIVE
BOARD**



**NATURAL GAS
DEPARTMENT**

**PROMOTION,
ADVERTISING
& RESEARCH**

**RESIDENTIAL
GAS SECTION**

**INDUSTRIAL
& COMMERCIAL
GAS SECTION**

**ACCOUNTING
SECTION**

**GENERAL
COMMITTEES**

**OPERATING
SECTION**

LABORATORIES

**MANUFACTURER'S
SECTION**

**252 COMMITTEE
2,609 MEMBER**

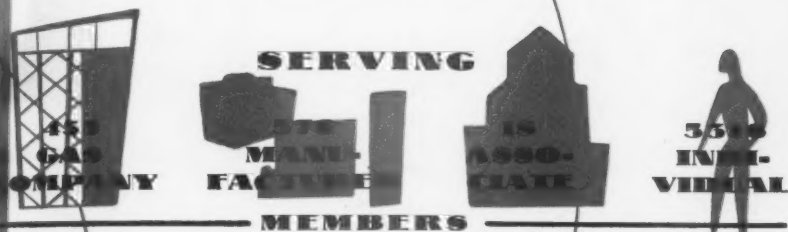


**89 HEADQUARTERS
STAFF MEMBER**



**154 LABORATORY
STAFF MEMBER**

ORGANIZATION



PRESENT structure of the Association has been dictated by experience and the industry's needs. As shown in the chart, all authority extends from the Executive Board through the separate units, committees and permanent staff, culminating in service to members and ultimately to the public. Fountainhead of all A.G.A. activities last year was the group of 252 active committees manned by 2,609 members, selected for their special experience and ability. Rotation of personnel and constant analysis of the roster enabled these committees to represent all sizes and types of companies and geographical areas. United in their support of the Association were 433 gas company members who served more than 90 percent of the nation's gas customers. While the number of company members leveled off, individual memberships mounted to 5,316, a gain of 346. Rounding out the A.G.A. rolls were 576 manufacturing firms and 18 associate members. Only organizational changes in 1949 altered the name of the Technical Section to Operating Section and provided for appointment of executive assistants.



PAR COMMISSIONE

Administration of the PAR fund was continued on the pattern set up the previous year. The top committee raised funds, passed upon all budgets, and directed expenditures. Promotional efforts were unified and integrated under a general planning committee while a similar group coordinated all research efforts. In a published tribute to these capable industry committees, the first PAR Committee chairman, Ernest R. Acker said: "The funds have been handled with extreme care and unusual foresight. They have been allocated to those activities which would bring the most immediate and potential benefits to the greatest number of member companies."



RESEARCH

WHILE an atom-conscious world regards research with a hopeful but fearful eye, many industries are supporting projects which should prove a boon to mankind. One of the leaders in this category is the gas industry whose PAR Plan features a double-barreled program for improving and originating gas-making processes, and developing new and more efficient gas appliances. Already catalytic reforming, high B.t.u. gas, and other A.G.A. research developments have had a profound effect upon the course of the industry. At the same time, other research projects have brought appliance changes which have improved the industry's competitive position.

In addition to these recognized basic achievements, many collateral advantages have accrued as a direct result of the PAR program. In the case of at least one gas company, an early aversion by the financial community to a vital financial program was turned into a substantial over-subscription of funds when A.G.A. research results were described. Talks by PAR executives and others before influential financial groups have confirmed an intense interest in the research program and its effect on the future of the industry.

A total of 54 separate projects were actively pursued during the year, of which eight were new projects. Ten were completed. More than one-half of the \$655,000 spent was devoted to 11 gas production and mixed gas projects, one-fourth to 28 domestic gas research. The remaining funds were devoted to eight industrial and commercial and seven general technical research projects. Major advances were made on 12 projects, while publication of 22 research bulletins and technical reports added to the growing pool of technical information.

The highly trained staffs and substantial equipment of the A.G.A. Laboratories and the Institute of Gas Technology were concentrated on major portions of the program. A fresh viewpoint and additional experienced technical personnel was provided by 10 other widely recognized scientific institutions who conducted A.G.A. projects. In addition, 290 men, from technicians to executives on committees, contributed their time and energy to A.G.A. research.

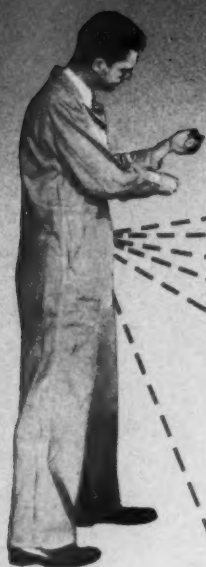


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MAKING ANALYSES OF FUEL OR



CHECKING ADVANCED THEORIES OF COMBUSTION

Gas Production Research—The gas industry has begun to reap the potentially rich harvest from the seeds planted five years ago in the 11 gas production and mixed gas research projects. At a time when natural gas expansion, new alltime peak sendouts, shifts in basic fuel types, and high operating costs have brought serious problems, the A.G.A. program has provided a beacon of light to gas plant operators. Relief from the peak-load problem, practical answers to mixed-gas questions, new gas-making processes, and advanced equipment have stemmed from this PAR program. Simultaneously, manufacturers have been stimulated to pioneer new equipment.

Special attention centered on the Hall oil-gas process, developed in the previous year, which makes economic use of low-cost, high carbon Bunker oils for making high B.t.u. gas. Applying the principals of this process, manufacturers have produced new equipment designs now being introduced to the industry. Thus far three manufacturers and five utilities have been granted free licenses under the patent applications assigned to A.G.A. Significant is the published statement of one gas utility executive that the Hall process, with a ten percent increase in total investment, can increase plant and distribution capacity 80 percent or more and at the same time reduce production cost 20 to 30 percent.

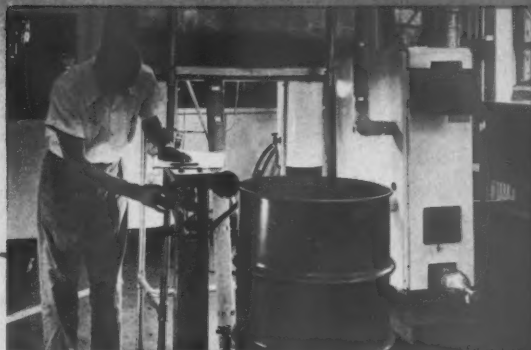
Complementing the Hall process in providing an



RESEARCH IN VARIOUS METHODS OF COOKING



OBSERVATION OF PILOT PERFORMANCE



INVESTIGATION OF WATER HEATER PERFORMANCE

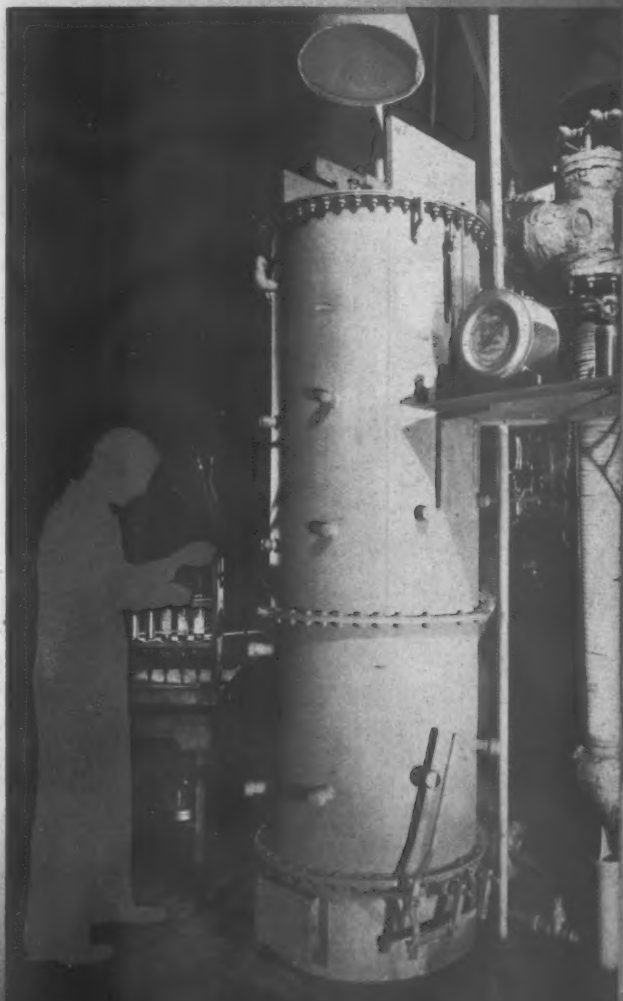
important degree of flexibility in the production of mixed gases, is the catalytic reforming of hydrocarbons to produce low B.t.u. water gas. Continuous catalytic units have now been installed by five gas utilities and PAR Plan experimental work has been completed. Another step forward last year was the successful application of catalytic cracking principles to cyclic operations using a modified water gas set.

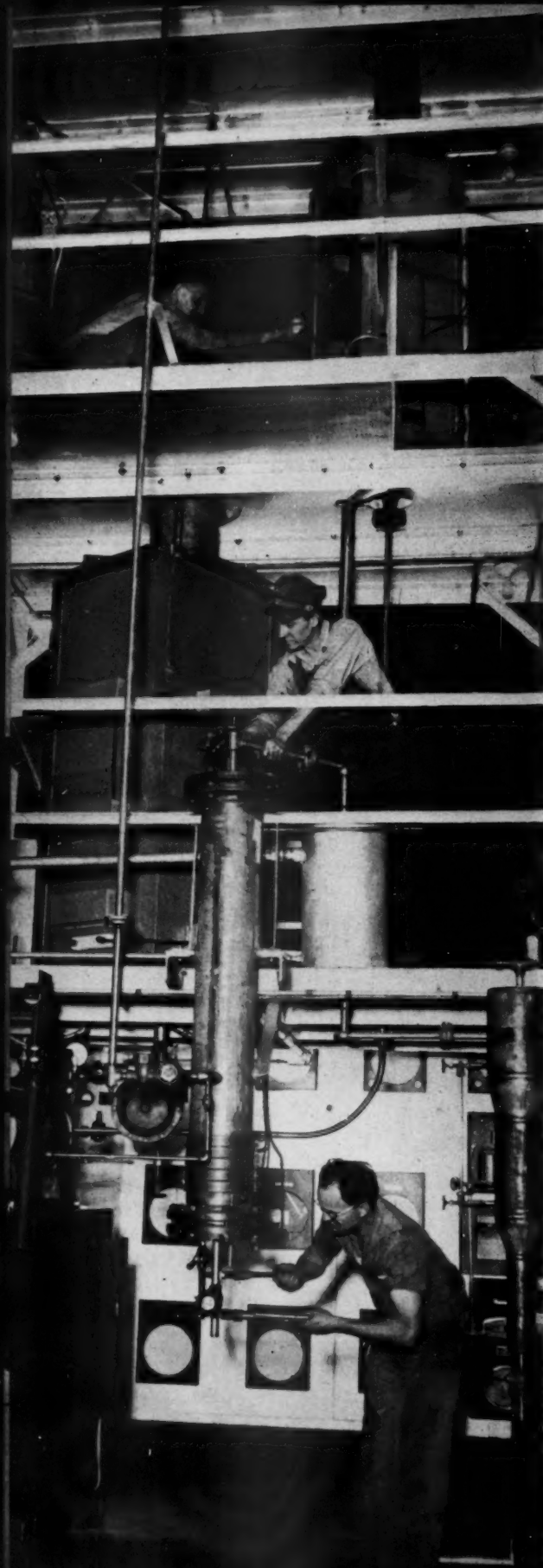
The increasing number of companies facing mixed gas problems received valuable information in four bulletins covering the interchangeability of six base load gases with 3Q supplementary gases. Practical answers were given to the behavior of a wide variety of mixed gases upon a group of appliance burners.

Other projects pointed the way to the realization of greater income from tar, provided a manual of oil evaluation methods, and held promise of additional catalytic applications of substantial value. One catalytic investigation was so fruitful that International Nickel Company contributed \$8,000 for the current year in a cooperative project.

General Technical — Advances in natural gas production and distribution practices have been achieved in a cooperative research program with the U. S. Bureau of Mines. Of particular interest in 1949 was the successful field trial of a recording instrument extremely sensitive to small concentrations of water

STUDY OF MECHANISM OF WATER-GAS REACTION





vapor at pipeline pressures. One of the oldest A.G.A. research projects devoted to facilitating recovery of gas from condensate wells made substantial progress.

Test pipe of incredible smoothness, made by the Naval Gun Factory, was utilized in the search for a natural gas flow equation under conditions of high pressure, larger lines, and greater flow rates. Other facets of this research program delved into problems of nitrogen removal from natural gas, and development of improved gas measurement techniques.

Utilization Research — Marked headway on a broad front characterized the extensive domestic, industrial and commercial gas utilization program which consisted of 36 active projects in 1949. More than 500 persons took part in the two Domestic Gas Research and Utilization Conferences held in Cleveland and Los Angeles which featured 22 papers and panel sessions on various phases of the A.G.A. program. A total of 14 research bulletins and reports were published on a variety of projects including studies of range factors, design of pilots, venting, furnace heat transfer, water heater corrosion, kitchen ventilating systems, and gas counter appliances.

Emphasis of the entire program was shifted from short-term technical appliance improvements to an all-out attack on fundamental long-term utilization bottlenecks. In the domestic field, the main target became basic techniques which apply to every appliance — ignition, combustion and venting. Closer liaison between manufacturers and utilities resulted in increased use of A.G.A. research data by designers.

New methods of assuring complete combustion, positive venting and adequate aeration of gas furnaces and water heaters installed in small spaces of modern homes were developed. Other domestic gas projects provided basic information on the causes of pilot outages, design data for improved range top burner ignition, and advanced principles of air distribution in homes.

Industrial and commercial gas research continued to fortify and extend the use of gas in important fields. A study of the relationship of induction heating to industrial gas heating forged ahead. First A.G.A. report on the use of oxygenated air for industrial gas combustion was released and a design study of high temperature glow tubes was completed.

Help in holding and increasing the profitable commercial gas cooking business was forthcoming in the form of reports on steam tables, dry food warmers, and coffee and water urns. Development of automatic lighting methods, and studies of commercial ranges, broilers, and deep fat fryers, rounded out a concerted research attack in these fields.

PILOT UNIT FOR FLUIDIZED GASIFICATION



PROMOTION

MAJOR SUCCESS in combining the promotional resources of the entire gas industry was achieved in 1949. Complete coordination and integration of PAR promotion and national advertising with utility, manufacturer and dealer efforts brought substantial gas appliance sales. An outstanding example was the Old Stove Round Up that swept the country in the Fall.

Early in the year an industry-wide survey was made to determine preferred selling periods for various appliances. As a result, a promotional timetable was set up to guide all advertising and sales campaigns in the last quarter of 1949 and throughout 1950. Thus was inaugurated the policy of long-range planning of A.G.A. sales programs which already has multiplied the effectiveness of every dollar spent.

Range sales were bolstered in the Spring by a campaign entitled "Which Will You Be?", featuring a dealer brochure of sales tools. More than 200 utilities took part in this effort. Simultaneously, the year-round New Freedom Gas Kitchen program, promoting all-gas units in old and new homes, spotlighted automatic gas ranges and other appliances.

An accelerated water heating promotional drive included the development of a water heater sizing selector, national advertisements, display bulletins, and other material tying in with G.A.M.A.'s "Court of Flame" campaign. Meanwhile a solid foundation for future water heating sales promotion was laid by a national survey of public attitudes.

Large segments of important audiences were reached by mass media methods, particularly trade shows, motion pictures, and educational home service manuals. Four new gas industry films were produced with PAR-financed funds, while a novel lending library was started to spur use of films.

The profitable commercial cooking business was the target of a strong barrage of sales aids such as cooking clinics, personal contact, and promotional pieces. This program was augmented by a series of information letters directing attention to special commercial and industrial gas applications.



WATER HEATERS
AND
CLOTHES DRYERS



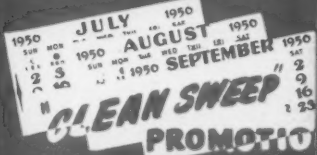
RANGES



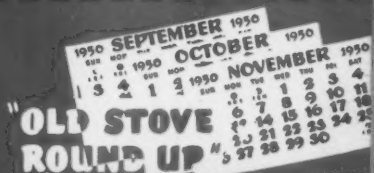
HOUSE HEATING
AIR CONDITIONING
AND INCINERATION



REFRIGERATORS



RANGES







OLD STOVE

ROUND UP

THE greatest single promotional campaign in the history of the gas industry was the Old Stove Round Up launched in August with the objective of selling one million gas ranges during the Fall season. About 400 utilities, 60 manufacturers, and 40,000 dealers united in this drive to replace antiquated or outmoded cooking appliances. Total expenditures of A.G.A., G.A.M.A., individual manufacturers, utilities and dealers concentrated more than one million dollars in this coordinated effort—the first shot in A.G.A.'s pattern of long-term integrated campaigns.

Results exceeded the most optimistic expectations. Gas range sales which had dropped 50 percent below the previous year in the first six months of 1949 snapped back to reach an all-time high monthly record of 260,000 units shipped in October. The Old Stove Round Up was credited with being responsible for the sale of one-half million more gas ranges than would otherwise have been sold. Total gas range sales for the year were more than 2,100,000. So successful was the Round Up that it has been incorporated as an annual feature of A.G.A.'s program.

Back of this campaign was an aggressive, well-planned effort. Starting on August 1 and continuing into September, A.G.A. sponsored eight regional meetings, respectively, in Atlanta, New York, Chicago, Kansas City, Minneapolis, Fort Worth, Santa Barbara, Portland, and Boston, which set the stage for local campaigns. Many types of sales aids were presented as well as forceful pictures of round ups in action, based on experiences of other gas companies.

All who participated received copies of a 16-page, two-color campaign brochure giving an entire sales plan replete with suggestions for dealer meetings, door-to-door canvassing, floor and window displays, newspaper and radio advertising, as well as contest and prize suggestions. Under the direction of the promotion bureau, seven A.G.A. committees, domestic range, sales training, display, New Freedom gas kitchen, publicity, advertising, and home service, were given important assignments and contributed to some phase of the promotion.



Expositions



● Approximately 375,000 people representing large gas consuming industries attended the eight national expositions which included A.G.A. sponsored exhibits of gas equipment. These shows were open only to tradesmen or artisans representing restaurant and hotel operators, metal crafts, foundrymen, food service directors, home economists, heating and ventilating specialists, builders and master plumbers.

Commercial



● An aggressive commercial cooking promotional campaign centered around a chain contact program, equipment development, distribution of sales-starters, films and manuals. An effective weapon was a booklet giving results of a 26-month comparative cost study of gas and electric cooking equipment. Cooking schools sponsored by the Association jointly with 25 gas companies proved highly successful.

Industrial



● Development of the vital industrial gas market was a prime objective. Effective sales training was provided by an A.G.A.-sponsored industrial gas school that was attended by 100 men from 25 states. Ten information letters, 12 news letters, and 24 committee meetings sparked industrial and commercial gas promotion. Reprints of A.G.A. industrial gas advertisements and displays further boosted sales.

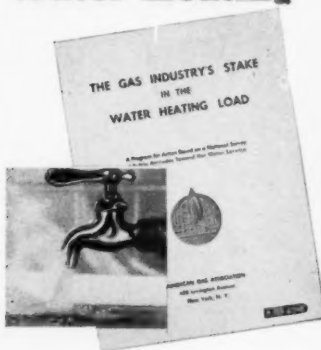
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Conferences



● Four sales conferences, in addition to eight Old Stove Round Up meetings, proved important vehicles to emphasize gas equipment sales points and promote national coordination of effort. Three residential gas meetings gave firsthand information and inspiration to 800 sales executives. A three-day industrial and commercial gas conference, featuring 42 speakers, attracted 200 delegates from 27 states.

Water Heating



● A 24-page booklet pinpointed public preferences in water heating. Established in a nationwide survey, this data will be invaluable as a promotional guide. Four-color advertisements and tie-in material supported G.A.M.A.'s "Court of Flame" drive. Related gas markets, such as house heating and incineration, also were studied. An A.G.A. report on upgrading domestic gas heating installations was distributed widely.

Hollywood



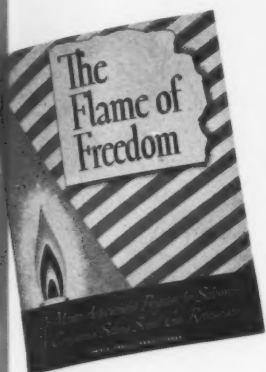
● As a result of A.G.A. contact with motion picture studios, 150 gas appliances were supplied for 66 Hollywood productions, three commercial productions, six television shows, and a large number of radio give-away programs and television shorts. Tie-in promotion and advertising material, including mats and photographs, was distributed to gas companies for use during local showings in their respective territories.

Visual



Visual sa
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sponsored
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," "New L
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Refrigeration



A nationwide gas refrigeration contest conducted in cooperation with Servel, Inc., sold 100,000 refrigerators. A total of 150 gas companies representing 12 million customers, 2,000 retail salesmen and 400 dealer salesmen, participated. Specific mention of the gas refrigerator in all A.G.A. gas range national advertising, which reached millions of prospects, was an additional sales incentive.



Home Service

Sparked by a variety of A.G.A. activities, home service gained recognition as a potent sales and educational force. A national survey, indicating nearly nine million annual contacts, further clarified home service work.

A.G.A. functioned as a clearing house of information by issuing quarterly newsletters, compiling an annual listing of home service directors, and sponsoring national and regional meetings.

Highlight of the year was the Home



Service Workshop which was attended by 250 delegates from 30 states. This event gained wide acceptance as a training course for new personnel.

Publication of a booklet on "The Home Service Demonstration" added to the growing list of material provided for home economics students and teachers. Benefits of home calls were analyzed in a supplement to another A.G.A. manual. Further help was supplied through Association home service visits to 68 gas companies.

Visual Aids



Visual sales and educational material, such as films and display aids, added to the industry's promotional power. Film productions sponsored from PAR funds included, "Gas for Home and Industry," "New Freedom in Her Modern Gas Kitchen," "Flame Facts About Gas," and "Heart of the Home." Circulation of A.G.A. and other gas industry films was stimulated by a lending library, and a folder was compiled listing those available.

The New Freedom Gas Kitchen Program, featuring modern home settings, rallied promotional support for gas appliances. Many consumer magazines displayed four-color gas kitchen articles which were widely reprinted. As a result of A.G.A. effort, one publication devoted an entire issue to a pace-setting all-gas home.

New sales ammunition was provided by the booklet, "Modern Designs for Kitchens and Laundries," and by co-sponsorship

of the outstanding McCall's motion-picture film "New Freedom in Her Modern Gas Kitchen." Another effective vehicle was the A.G.A.-St. Charles "Pink Kitchen," which was a hit at the Home Economics Convention and elsewhere.

Rounding out this program, which is supported by 165 utilities with 13½ million meters, were tie-ups with the Old Stove Round Up, and continued certification of New Freedom Gas Homes.

New Freedom Gas Kitchens

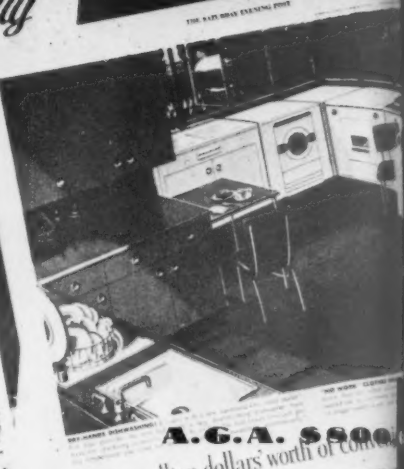


Save 30 to 100 when you buy



Diversified High Temperature Processes at
McDANIEL REFRACTORY PORCELAIN CO.
...the Controllability of

...thing to learn...



A.G.A. \$800.00
Now! a million dollars' worth of comfort

MANUFACTURERS \$2,000,000



UTILITIES AND DEALERS \$5,200,000

No matter how you say it

for only a few cents a day!

TOTAL \$6,000,000



AMERICAN GAS ASSOCIATION
400 Madison Avenue, New York 17, N.Y.
In 1974, organized as AMERICAN GAS ASSOCIATION, December 12



ADVERTISING

NATIONAL ADVERTISING continues to play a leading role in the gas industry's promotional offensive. Three hard-hitting campaigns were financed last year under the PAR Plan. Major advertising pressure was concentrated on the promotion of automatic gas ranges built to "CP" standards, with mention of the gas refrigerator. A second and smaller campaign was devoted to the promotion of automatic gas water heating. The commercial and industrial gas program, which is in its 26th year, was continued without change in format or objective. This drive, together with the 14-year-old residential effort, constitutes one of the most sustained cooperative advertising campaigns on record.

The Association's domestic gas campaigns on cooking and water heating were conducted in close cooperation with manufacturers who do national advertising. This integration was in line with the PAR objective of bringing about increased consumer magazine advertising on gas ranges and gas water heaters until it equals or exceeds the volume of competitive advertising.

This goal was in sight at year's end when it was estimated that 1949 gas range advertising would exceed in volume that of electric ranges. In the competitive water heater field, the volume of gas advertising showed an increase of 74 percent over the previous year. Moreover, the A.G.A. water heater campaign was largely responsible for a decrease of 58 percent in the volume of manufacturers' advertising mentioning all fuels and the conversion of a substantial part of this to straight gas advertising.

Continued use of the Association's advertising themes, particularly the slogan "Gas Has Got It," appeared in local newspaper advertising sponsored by utilities, dealers and manufacturers and helped materially in maintaining large volume sales of appliances.

Advertising of outstanding industrial and commercial gas utilizations, based on case histories, appeared in leading technical publications serving hotels, restaurants, institutions and bakeries, as well as metals, ceramics, chemical, textile and printing fields.



PUBLICITY



GENERAL

The gas industry became front page copy with increasing regularity as the A.G.A. supplied a mounting flow of information to the press and 675 top financial institutions. Special feature articles in leading magazines attracted wide readership.



RADIO-PRESS

Press coverage of domestic gas equipment increased greatly over 1948 through publication of special stories and Kitchen Memo, a woman's column printed in 1970 newspapers. Modern kitchen and laundry equipment information was broadcast regularly by more than 900 radio stations.



INDUSTRIAL

Factual information about the gas industry appeared in ranking magazines in industrial gas and allied fields. Favorable reports on gas industry research, promotion and utilization progress were published throughout the year by business and trade journals.

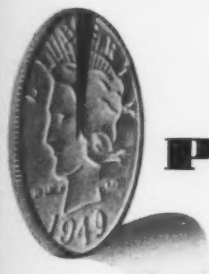


DOMESTIC

Direct A.G.A. contact with 38 national women's and shelter magazines brought news about gas equipment for the home to 387 million readers. More stories on gas water heating, house heating and air conditioning were published than ever before. Illustrated color articles stressed gas cooking efficiency and modern kitchen planning.

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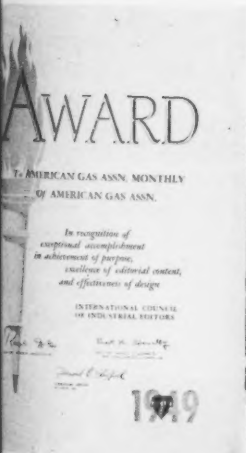
PUBLICATIONS

PUBLICATIONS ranging from books to newsletters were a prime source of communication linking A.G.A. to its members and the outside world. As national interest centered on the gas industry's expansion, these publications gained ever wider readership.

A Publications Bureau was organized during the year for the purpose of further improving the large volume of printed material. Channeling publications through one department is expected to effect long-term economies and raise the general calibre of A.G.A. media.

For the third time, the A.G.A. Monthly received one of the top awards in the annual contest sponsored by the International Council of Industrial Editors. In competition with 600 American and Canadian magazines, the Monthly scored 97 out of a possible 100 points to become the only association publication to win an award. Earlier in the year, the Monthly made its bow in a newly-designed cover and modern type style that won widespread approval. Its circulation rose to a peak of nearly 7,000.

Supplementing its own publications, A.G.A. maintains the most complete gas industry library in the world. More than 5,000 books, 560 current periodicals, and 158 file drawers of reference material have been collected on all conceivable topics. Thirty years of painstaking effort have made the library the Mecca of information seekers.



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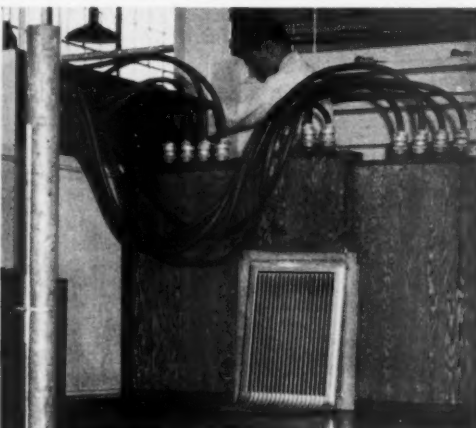


1. SPACE HEATER TESTING AT CLEVELAND LABORATORIES. 2. ACCURATE RECORDS ARE ESSENTIAL PART OF EQUIPMENT STUDIES. 3. CHECKING THE AUTOMATIC GAS CLOTHES DRYER. 4. TESTING FLUSH-TO-WALL RANGE FOR ALLOWABLE WALL AND FLOOR TEMPERATURES. 5. VISITORS GETTING FIRSTHAND VIEW OF LABORATORIES' PERFORMANCE AND SAFETY TESTS. 6. FLOOR FURNACE MOUNTED FOR MEASUREMENT OF WALL AND JOIST TEMPERATURES. 7. OBTAINING COMBUSTION SAMPLE FROM RECESSED SPACE HEATER MOUNTED IN TEST WALL. 8. ACCESSORY TEST SECTION AT LOS ANGELES LABORATORIES.

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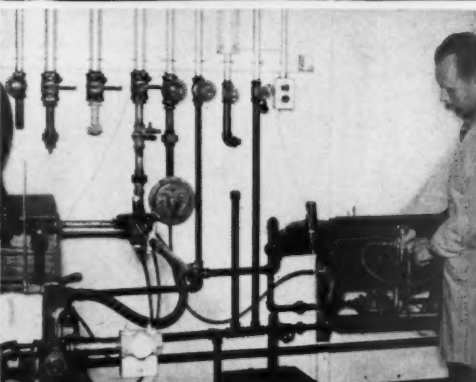
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LABORATORIES

FOR the third successive year, the A.G.A. Laboratories' services to the gas industry reached a new peak. Appliance testing and inspection services, the major activities, exceeded those of the year before by 20 percent. Gross volume of all operations reached nearly a million dollars or approximately double the prewar peak of 1940.

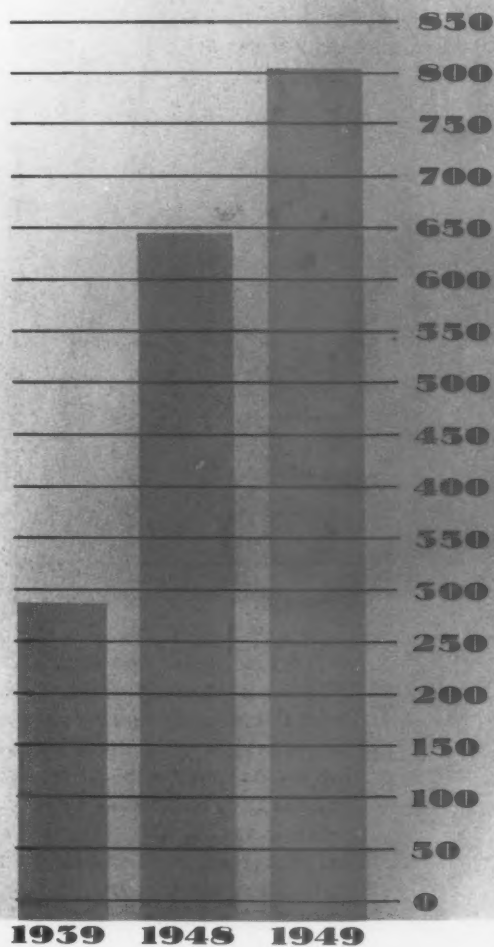
Testing and inspection services, which are conducted on a self-supporting basis, represented about two-thirds of all Laboratories' revenue or expense. Requirements committee activities financed by the Association's General Fund were maintained at the same rate as last year. Likewise, research activities financed by the PAR Plan, totaling \$160,000, were continued on the same level.

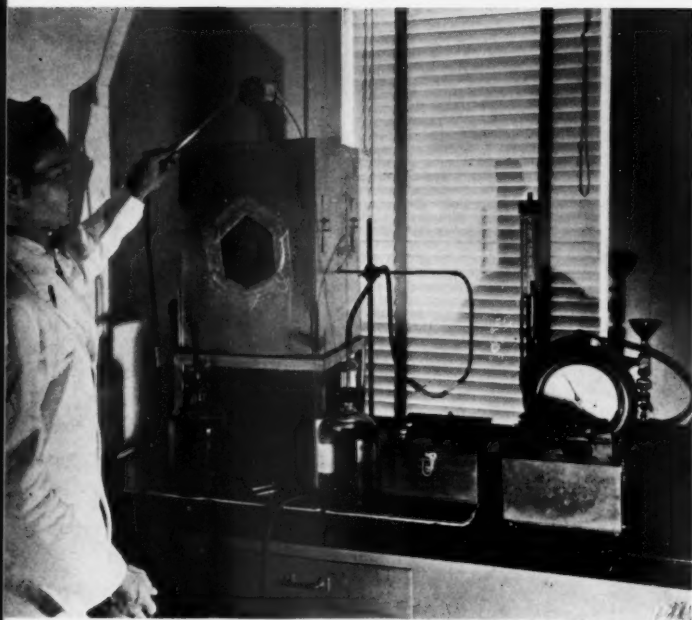
Major emphasis of the year was placed on meeting the peak testing load. This followed closely the post-war pattern which includes not only increased demands for service but also revision, simplification and coordination of appliance standards and test methods to keep pace with new utilization developments. To meet these demands, additional personnel was employed, facilities improved and testing methods revised. One step was appointment of a chief methods engineer to provide closer coordination between formulation of appliance standards and their translation into test methods.

Additional floor space provided at the Pacific Coast Branch in 1948 through purchase of an adjoining building was brought into full operation during the year. Plant improvements included the building of an additional closed room at the Cleveland Laboratories for testing room heaters, provision of a second butane-air plant, piping of both butane and butane-air from centralized storage centers, and purchase of additional iodine pentoxide equipment for analysis of combustion products.

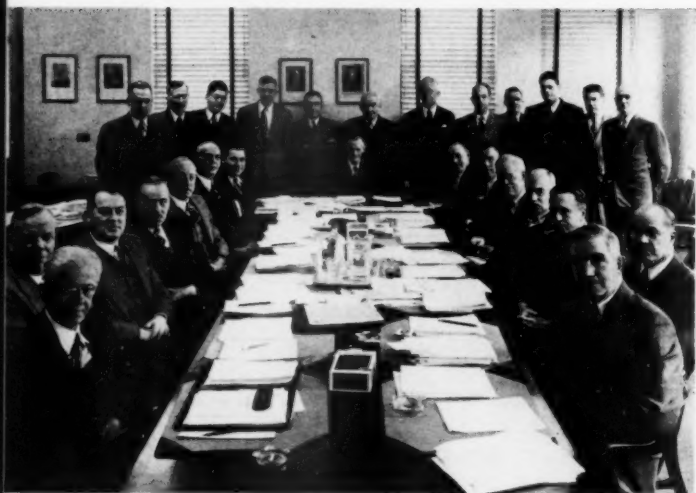
After thorough review by the Laboratories' Managing Committee, a revised schedule for test fees was made effective July 1. Those for central heating appliances were reduced materially. Fees for hotel

TESTING, INSPECTION AND REQUIREMENTS ACTIVITIES in thousands of dollars





SAMPLING FLUE GAS IN COMBUSTION STUDY



APPROVAL REQUIREMENTS COMMITTEE IN SESSION

ranges and accessories were raised, these having remained unchanged in 1941 when all other fees were increased. All test fees were placed on a net basis of 95% of former fees and the 5% discount formerly allowed for prompt payment was eliminated since the great majority of accounts are promptly paid.

Inspection services also reached a new high. The number of manufacturers participating in the approval plan increased approximately 25% with an accompanying rise in the number of distributors, jobbers and dealers. In addition, old companies intro-

duced many new models and sought to reinstate former designs discontinued temporarily.

Starting with January, 1949, the Directory of Approved Gas Appliances and Listed Accessories was changed from a quarterly to a semi-annual publication and improvements were made to increase its value to users.

New requirements were adopted and approved by the American Standards Association, Inc. for seven types of equipment, including domestic gas ranges, water heaters, room heaters and incinerators. Effective January 1, 1950, they carry forward the program of simplification and modification of standards initiated several years ago. Also issued for criticism during the year was a completely revised proposed standard for the installation of gas piping and gas appliances in buildings.

Action was taken to improve standard procedures and streamline the functioning of subcommittees. Of special significance was a procedure for providing for the certification of equipment for which no definite standards were available. Four subcommittees for different types of commercial cooking equipment were consolidated. Two other requirements groups were dissolved as unnecessary under present conditions. Four sets of requirements representing equipment no longer active were withdrawn.

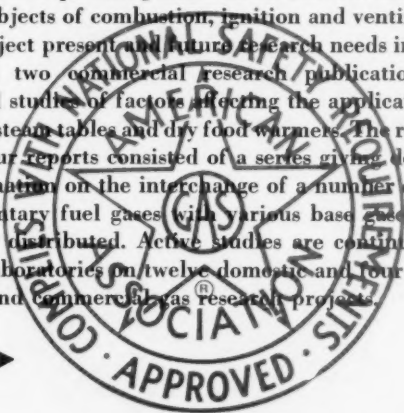
A revised "Manual of Organization and Procedure for A.G.A. Requirements Committees" was issued during the year and a supplementary booklet explaining Laboratories procedure "What You Should Know About Your Laboratories" was distributed to manufacturers and utility companies.

Six bulletins and eight reports were printed and distributed during the year to present results of studies on domestic, commercial and industrial and mixed gas research projects conducted under the PAR Plan. All six bulletins and two reports were devoted to domestic gas research.

Of principal significance were those dealing with performance of central heating equipment installed in confined spaces, modulated operation of warm air furnaces and heat transfer. Extensive data were also prepared to present general information available on the subjects of combustion, ignition and venting and to project present and future research needs in each.

The two commercial research publications reported studies of factors affecting the application of gas to steam tables and dry food warmers. The remaining four reports consisted of a series giving detailed information on the interchange of a number of supplementary fuel gases with various base gases commonly distributed. Active studies are continuing at the Laboratories on twelve domestic and four industrial and commercial gas research projects.

LABORATORIES' SEAL OF APPROVAL ►





AWARDS

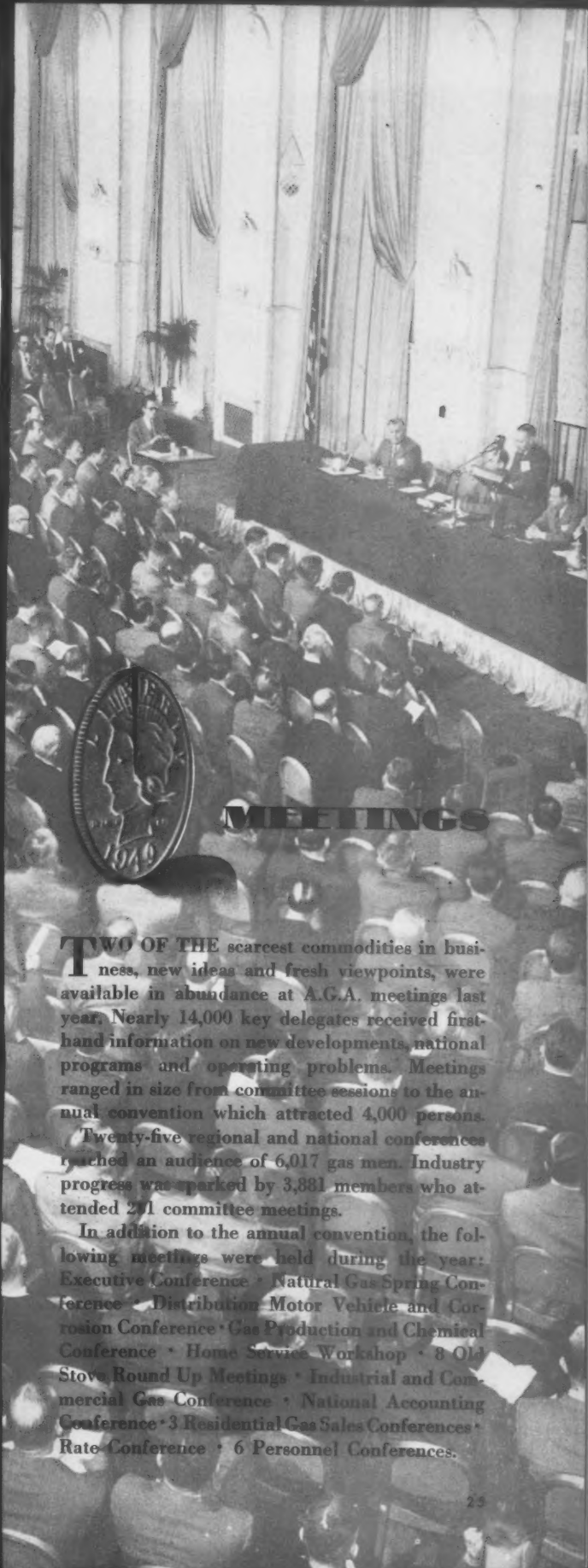
EIGHT different classes of major awards were made by the Association in recognition of exceptional achievement and unusual leadership in the gas industry. Presentation of these singular honors has proved a powerful incentive to individuals and companies alike.

At the apex of the industry's ladder of fame stands the Distinguished Service Award which is bestowed to the individual who has made the most outstanding contribution to the gas industry. The 1949 winner, James A. Brown, president, Michigan Gas Storage Co., was honored for a long list of engineering accomplishments. A similar technical award, the Beal Medal established in 1897, was presented for the second time to Edward G. Boyer, The Philadelphia Electric Co. for a report on the peak load problem.

Three awards singled out accomplishments in accident prevention. Highest honor, the Meritorious Service Award, was awarded posthumously to Terrence Charles Casey, Rochester Gas and Electric Corp., for heroic action in rescuing fellow workers. Eighteen other individuals received McCarter Medals for life-saving acts. In addition, two units of The Ohio Fuel Gas Co., received Merit Awards for accumulating more than one million man-hours of work without injury.

Newest award, the second Annual Progress Award for Gas Summer Air Conditioning, sponsored by Servel, Inc., was presented to Houston Natural Gas Corp. for an aggressive merchandising program. Sparking effort in a related field, was the Gas Heating Progress Award, sponsored by The Coroa Heater Corp., which was presented to D. M. Baker, Oklahoma Natural Gas Co.

Major contributions to home service were cited in Home Service Achievement Awards, sponsored by McCall's Magazine. Winners in this category were Mrs. Eleanor V. Wiese, Mrs. F. Jean Torrance, Mrs. A. H. Patison, and Eleanor A. Marvin.

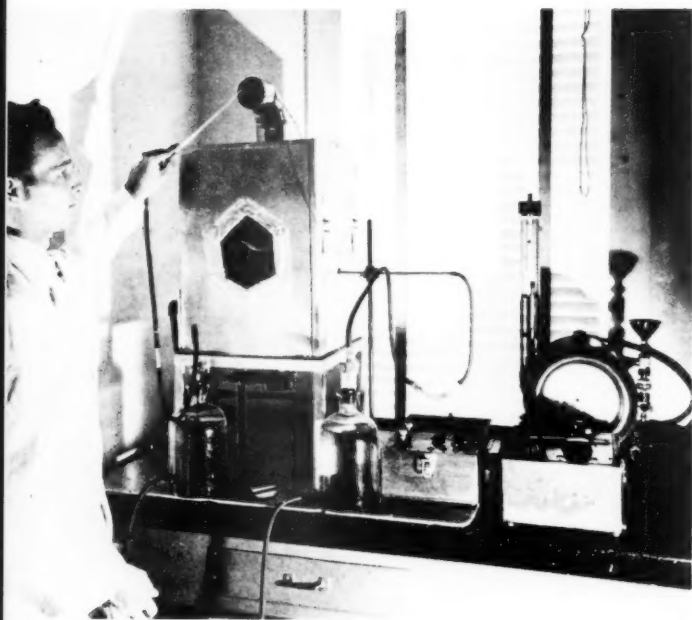


MEETINGS

TWO OF THE scarcest commodities in business, new ideas and fresh viewpoints, were available in abundance at A.G.A. meetings last year. Nearly 14,000 key delegates received first-hand information on new developments, national programs and operating problems. Meetings ranged in size from committee sessions to the annual convention which attracted 4,000 persons.

Twenty-five regional and national conferences reached an audience of 6,017 gas men. Industry progress was sparked by 3,881 members who attended 291 committee meetings.

In addition to the annual convention, the following meetings were held during the year: Executive Conference • Natural Gas Spring Conference • Distribution Motor Vehicle and Corrosion Conference • Gas Production and Chemical Conference • Home Service Workshop • 8 Old Stove Round Up Meetings • Industrial and Commercial Gas Conference • National Accounting Conference • 3 Residential Gas Sales Conferences • Rate Conference • 6 Personnel Conferences.



SAMPLING FLUE GAS IN COMBUSTION STUDY



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STATISTICAL SERVICE



FACTS and more facts developed by A.G.A. during the year enabled the gas industry to chart basic trends, pinpoint markets and clarify its economic position. While this material was directed primarily to utility managements and appliance manufacturers, other important groups such as banks and investors received an ever-growing supply of information. In addition, many special studies were made to assist A.G.A. members, committees and staff.

The 1948 edition of "Gas Facts," a 240-page book of basic gas industry data, was the most outstanding single piece of Association statistical work. Issued in August, the earliest release date since it first appeared three years ago, this edition was improved and expanded to include new tabular material. Additions included data on utility miles of main, financial sta-

tistics, major interstate pipeline systems and more charts highlighting significant industry trends.

A resurvey of anticipated construction expenditures by the gas utility industry for the years 1949 through 1952 focused attention on the industry's vast expansion program. On the basis of this study, previous estimates were revised from 3½ billion dollars to 3½ billion dollars for the five-year period. This survey was part of a comprehensive study of financing problems by a joint A.G.A.-E.E.I. committee.

Both gas utilities and appliance manufacturers received valuable production, sales and market research material. Of timely interest was a gas house heating survey for the 1949-1950 heating season which covered gas utilities serving 94 percent of all residential gas meters in the United States. A.G.A. also undertook a study of the gas utility customers in each county in the United States to determine appliance saturation, types and character of gas served.

Monthly and quarterly reports on gas industry sales, revenues and customers kept the industry and business world posted on gas progress. At the same time, the A.G.A. Rate Service continued to provide an authoritative barometer of the industry's charges to the public. The usefulness of this publication was enhanced during the year by a supplement which showed the current level of fuel adjustment charges.

A number of government agencies utilized A.G.A. statistical data in the preparation of indexes of economic conditions. One new service was the preparation of monthly gas sales estimates for use in a state-wide index of business activity in New York.

As the year ended, two additional studies were underway (1) to determine the economic and financial characteristics accompanying changes from manufactured to natural gas, and (2) to ascertain the comparable costs of heating residential dwellings with gas, oil and coal. The latter study will be made a regular quarterly or semi-annual publication, thus further expanding the steady flow of basic factual data available to the gas industry.



UTILIZATION SERVICE

A BROAD-GAUGED attack on gas utilization bottlenecks proved fruitful in 1949. Exploding false competitive claims, improving gas equipment, and promoting safe installation practices were primary targets. Many companies also received help in solving local problems.

The favorable energy relationship for gas as compared with electricity for domestic cooking established by field tests in 1948 was confirmed by a series of laboratory tests. A second project, completed in 1949, indicated the degree to which gas burned by pilots is recorded on domestic meters. Still a third activity was directed toward securing from state housing commissions a more favorable gas replacement factor.

Highly significant results of A.G.A. commercial equipment tests were made available to gas companies and commercial kitchen operators.

These consisted of authentic replacement factors pertaining to the relative consumption of gas and electricity for identical cooking operations. The results were obtained by a three-year test in Washington, D. C., and verified by further work at Southern Methodist University.

Meanwhile the program to improve performance and design of commercial and industrial equipment made substantial headway.

A major achievement was the issuance of an enlarged and revised edition of the Water Heater Service Manual. Continuing demand for the Range Manual required reprinting of this book.

Safety regulations sponsored by A.G.A. moved forward with publication by N.F.P.A. of basic rules for the installation of LP-gas equipment.



RELATIONS WITH OTHER ORGANIZATIONS

BOUND together by common objectives, A.G.A. and 18 regional gas associations dovetailed their activities to produce maximum effect. National programs were carried to the local level by activities of regional groups. Nearly 50 A.G.A. staff members addressed major meetings of these organizations. Closer coordination was effected by means of a Spring meeting of executives of 10 regional associations with staff members of A.G.A., G.A.M.A. and the Institute of Gas Technology.

Seven PAR-supported gas production research projects were being conducted at I.G.T. and six Institute staff members served on A.G.A. committees. Further evidence of an effective relationship was the inauguration of A.G.A.-sponsored home study courses at I.G.T.

The close bond that has existed with the Gas Appliance Manufacturers Association was strengthened by integrated promotional efforts and manufacturer support of A.G.A.'s appliance testing and research program.

Outside the gas industry, A.G.A. participated actively in the programs of 107 business, professional and governmental organizations.



MEETING TO COORDINATE ASSOCIATION PROGRAMS



OTHER ACTIVITIES

OPERATING problems on a broad scale were under constant study. Committees dealing with gas production, distribution, chemical, corrosion, purging, and motor vehicle problems made outstanding contributions.

The Gas Production and Chemical Conference, with an attendance exceeding 700, was the largest ever held. Problems resulting from the advent of natural gas in manufactured gas territories and of the small gas plant received special attention. New developments in chemical instruments were described in a separate report.

Equally successful, the Distribution, Corrosion and Motor Vehicle Conference attracted a record registration of 750. Servicing material and field demonstrations of lightweight trenchers were highlights. The newly-formed Corrosion Committee contributed a series of articles to the MONTHLY.

Accounting practices and policies, from customer relations to depreciation, underwent vigorous analysis. High point of the year was the A.G.A.-E.E.I. National Accounting Conference which drew an all-time record registration of 717 persons. An impressive exhibit of accounting machines and office equipment rounded out the business sessions.

The Accounting Developments Service, started a year ago, continued to disseminate quarterly information on new accounting equipment and company practices. A newly-organized group assisted the F.P.C. in preparing proper accounting regulations for underground storage of natural gas. Another accomplishment was the development of standard packages for pipe fittings. Original articles were broadcast through the MONTHLY, and the national credit picture was published semi-annually.

Accident Prevention work continued unabated with the sponsorship of addresses on safety, publication of material, presentation of safety awards, distribution of Foreman's Reminders, and dissemination of statistics. Most important contribution was the drive for a substantial reduction in lost-time accidents.

Personnel relations received greater attention on the A.G.A. agenda in 1949 than in any previous year. Extensive surveys were made on the cost of employee benefits, wages, and absenteeism. The third annual personnel conference attracted delegates from 22 states, and five regional meetings provided local platforms for exchanges of information. Informative articles were sponsored and a regular Industrial Relations Round Table was published in the MONTHLY.

Rate matters were under constant scrutiny by an A.G.A. committee which issued an informative annual report. New studies were instituted to meet rate problems attending natural gas change-overs, and keep abreast of fuel clause developments.

Committees filled vital gaps. One group compiled and released natural gas reserve statistics. The Insurance Committee, which has aided the industry by contacts with underwriters and rating bureaus, began an Insurance Corner in the MONTHLY. Valuable work was done by the Mobile Radio Committee in securing for gas utilities a fair share of frequencies allocated to the power services.



FINANCIAL STATEMENT

RECEIPTS

88.9%	Gas Companies	
3.3%	Individual Members	
2.5%	Manufacturers	
5.1%	Publications Sales	
.2%	Other	

EXPENDITURES

18.2%	Departmental and Sectional Activities	
22.9%	General Activities	
9%	Publications	
13.7%	Approval Requirements	
36.2%	Administration	

RECEIPTS

DUES

Gas Company Members	\$795,060.63	
Building, Service, Foreign and Associate Company Members	3,556.18	
		\$798,616.81
Individual Members		29,663.33
Manufacturer Company Members	3,647.20	
Gas Appliance Manufacturers Association Service Payment	18,750.00	
		22,397.20
		850,677.34

SALES OF PUBLICATIONS

General	16,112.20
Sales Training Courses	4,302.68
Handbooks and Manuals	25,134.39

OTHER RECEIPTS AND REFUNDS

	45,549.27
	1,729.14
TOTAL GENERAL FUND RECEIPTS	897,955.75

EXPENDITURES

DEPARTMENTAL

Manufactured Gas Department—Activities, Traveling and Salaries	3,473.70
Natural Gas Department Activities, Traveling, Meetings and Salaries	24,213.27
Total Departmental Expenses	27,686.97

SECTIONAL

Accounting Activities, Traveling and Salaries	16,699.41
Residential Gas Activities, Traveling and Salaries	43,522.68
Sales Training Courses	2,550.24
Industrial and Commercial Gas Activities, Traveling and Salaries	16,426.21
National Displays	9,100.00
Operating Activities, Traveling and Salaries	15,946.47
Total Sectional Expenses	\$104,245.01

GENERAL ACTIVITIES

General Committees	11,331.10
Statistical Bureau—Activities, Publications, and Salaries	51,530.22
General Publicity Bureau—Activities, Publications and Salaries	45,196.04
Gas Utilization Bureau—Activities, Publications and Salaries	44,719.12
Annual Conventions (Net)	13,897.41
	166,673.89

PUBLICATIONS

Prepared for Resale	23,999.98
Other Publications, Including Association Monthly	41,290.72
	65,290.70

PAID TO LABORATORIES FUND

Cost of Approval Requirements Investigations	99,670.00
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GENERAL EXPENSES

Salaries not charged elsewhere	134,962.82
Rent and Light; Furniture and Fixtures	34,354.06
Stationery and Supplies; Telephone and Postage	19,343.79
Traveling and Field Work	9,340.79
not charged elsewhere	5,207.32
Counsel Fees and Expenses	2,504.73
Membership in Other Organizations	5,229.37
Social Security Taxes	33,603.45
Pension Fund	18,043.79
Other General Expenses	

TOTAL GENERAL FUND EXPENDITURES	\$726,156.69
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The records of the Association are kept on a cash basis and all financial statements in this report reflect cash transactions for the Association year ended September 30, 1949.

RECEIPTS

Appliance Testing and Inspection (from Manufacturers)	\$647,350.48
Approval Requirements (from General Fund)	99,670.00
Research and other Projects (from PAR Plan)	154,639.73
(from General Fund)	11,763.41
Miscellaneous Receipts	12,750.37
Total Laboratories Fund Receipts	\$926,127.99

EXPENDITURES

Appliance Testing and Inspection and General Expenses	532,108.64
Approval Requirements	99,670.00
Research and other Projects	166,403.14
Buildings and Equipment; Furniture and Fixtures	35,825.46
Payment on Bank Loan	31,375.00
Social Security Taxes	8,045.89
Total Laboratories Fund Expenditures	\$873,428.13

RECEIPTS

69.9 %	Appliance Testing and Inspection
10.7 %	Approval Requirements
18 %	Research Projects
1.4 %	Other

EXPENDITURES

60.9 %	Appliance Testing And Inspection
11.4 %	Approval Requirements
19.1 %	Research Projects
8.6 %	Buildings, Equipment and Other

LABORATORIES FUND

RECEIPTS

93.2 %	Gas Company Subscriptions
.8 %	Manufacturers Contributions
5.6 %	Promotion Material and Displays
.4 %	Other

EXPENDITURES

36.6 %	Research
16.5 %	Promotion
43.4 %	National Advertising
1.5 %	Other

EXPENDITURES

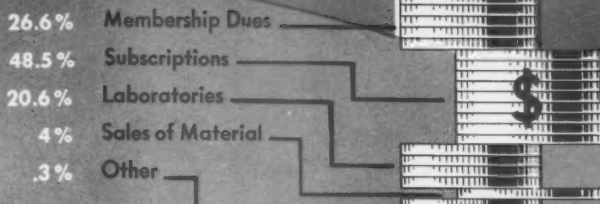
Gas Production Research Projects and Activities Direct Administration Expense	347,027.25	24,200.79	371,228.04
Utilization Research Projects and Activities Direct Administration Expense	220,397.36	19,131.44	239,528.80
General Technical Research Projects and Activities Direct Administration Expense	42,636.59	2,029.88	44,666.47
Promotion Projects and Activities Direct Administration Expense	257,981.57	73,033.02	331,014.59
National Advertising Advertising in National Magazines and Journals Direct Administration Expense	756,900.82	21,090.55	777,991.37
General Administration Expense	27,508.20		
Total Expenditures	1,791,937.47		

RECEIPTS

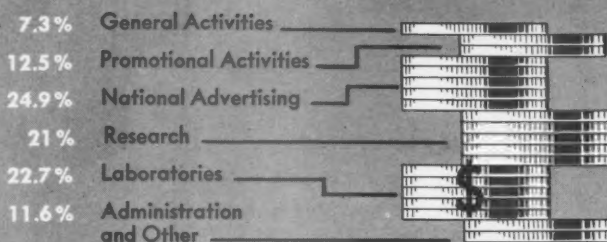
Subscription Payments by Gas Utility and Pipe Line Companies	\$1,539,962.79	
Contributions by Manufacturers: To New Freedom Kitchen Program	12,500.00	1,552,462.79
Apportionment of Cost of National Trade Exposition Displays	33,883.54	
Cost of Promotion Material	58,093.16	
Income from Investments	7,010.29	
	98,986.99	
Total Receipts	1,651,449.78	

PROMOTION, ADVERTISING AND RESEARCH PLAN

RECEIPTS



EXPENDITURES



RECEIPTS

MEMBERSHIP DUES

Companies (other than Manufacturers) and Individuals	828,280.14
Manufacturers (including Gas Appliance Manufacturers Association Service Payment)	22,397.20

850,677.34

SUBSCRIPTIONS AND CONTRIBUTIONS

By Gas Utility Companies (including Pipe Lines) to PAR Plan	1,539,962.79
By Manufacturers to New Freedom Gas Kitchen	12,500.00

1,552,462.79

LABORATORIES

Appliance Testing and Inspection Fees paid by Manufacturers	647,350.41
Miscellaneous Receipts	12,704.37

660,054.85

SALES OF PUBLICATIONS, MATERIAL AND DISPLAY SPACE

General	45,549.27
Promotion and Advertising	58,093.16
Display Space at National Trade Expositions	22,783.54

126,425.97

AWARDS

Interest on Trust Funds Receipts	1,988.64
----------------------------------	----------

OTHER RECEIPTS AND REFUNDS 8,739.43

TOTAL ASSOCIATION RECEIPTS 3,200,349.02

EXPENDITURES

DEPARTMENTAL AND SECTIONAL ACTIVITIES (other than Promotional)

60,332.85

GENERAL ACTIVITIES AND COMMITTEES 166,673.89

PROMOTIONAL ACTIVITIES by

Promotion Bureau	319,914.59
Residential Gas, Industrial and Commercial Gas Sections	71,599.13

391,513.72

NATIONAL ADVERTISING

Program and Materials	777,991.37
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RESEARCH

Gas Production	371,228.04
Utilization	239,528.80
General Technical	44,666.47

655,423.31

LABORATORIES

Approval Requirements	99,670.00
Testing, Inspection and General Laboratory Expenses	540,154.53
Buildings and Equipment	35,825.46
Bank Loan	31,375.00

707,024.99

PUBLICATIONS—GENERAL

AWARDS—Cost of Awards Made	2,167.58
Investment of Funds in Securities	5,471.88

65,290.70

GENERAL EXPENSES

Headquarters	268,721.11
Promotion, Advertising and Research Plan	17,308.20

286,029.31

TOTAL ASSOCIATION EXPENDITURES 3,211,583.61

CONSOLIDATED STATEMENT

RECEIPTS

Appliance Testing and Inspection (from Manufacturers)	\$647,350.48
Approval Requirements (from General Fund)	99,670.00
Research and other Projects (from PAR Plan)	154,639.73
(from General Fund)	11,763.41
Miscellaneous Receipts	12,704.37
Total Laboratories Fund Receipts	\$926,127.99

EXPENDITURES

Appliance Testing and Inspection and General Expenses	532,108.64
Approval Requirements	99,670.00
Research and other Projects	166,403.14
Buildings and Equipment:	
Furniture and Fixtures	35,825.46
Payment on Bank Loan	31,375.00
Social Security Taxes	8,045.89
Total Laboratories Fund Expenditures	\$873,428.13

Appliance Testing
and Inspection

Approval Requirements

Research Projects

Other

Appliance Testing
And Inspection

Approval Requirements

Research Projects

Buildings,
Equipment and Other

LABORATORIES FUND

Gas Company Subscriptions

Manufacturers
Contributions

Promotion
Material and Displays

Other

Research

Promotion

National Advertising

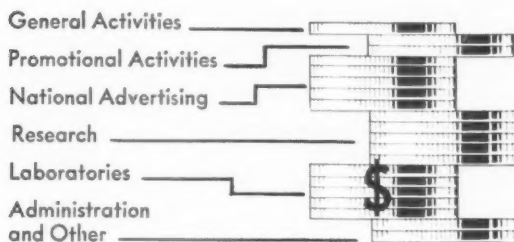
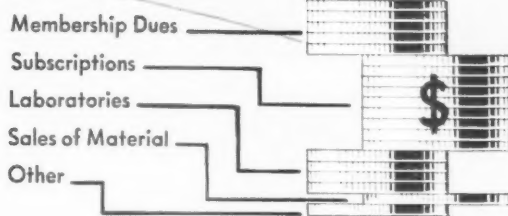
Other

RECEIPTS

Subscription Payments by Gas Utility and Pipe Line Companies	\$1,539,962.79
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	1,552,462.79
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Sales of	
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	73,033.02	331,014.59
National Advertising Advertising in National Magazines and Journals Direct Administration Expense	756,900.82	
	21,090.55	777,991.37
General Administration Expense		27,508.20
Total Expenditures		1,791,937.47



RECEIPTS

MEMBERSHIP DUES

Companies (other than Manufacturers) and Individuals	828,280.14	
Manufacturers (including Gas Appliance Manufacturers Association Service Payment)	22,397.20	
		850,677.34

SUBSCRIPTIONS AND CONTRIBUTIONS

By Gas Utility Companies (including Pipe Lines) to PAR Plan	1,539,962.79	
By Manufacturers to New Freedom Gas Kitchen	12,500.00	
		1,552,462.79

LABORATORIES

Appliance Testing and Inspection Fees paid by Manufacturers	647,350.41	
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SALES OF PUBLICATIONS, MATERIAL AND DISPLAY SPACE

General	45,549.27	
Promotion and Advertising Display Space at National Trade Expositions	58,093.16	
	22,783.54	
		126,425.97

AWARDS

Interest on Trust Funds Receipts	1,988.64	
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OTHER RECEIPTS AND REFUNDS

	8,739.43	
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TOTAL ASSOCIATION RECEIPTS 3,200,349.02

EXPENDITURES

DEPARTMENTAL AND SECTIONAL

ACTIVITIES (other than Promotional) 60,332.85

GENERAL ACTIVITIES AND COMMITTEES 166,673.89

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Promotion Bureau	319,914.59	
Residential Gas, Industrial and Commercial Gas Sections	71,599.13	
		391,513.72

NATIONAL ADVERTISING

Program and Materials		777,991.37
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RESEARCH

Gas Production	371,228.04	
Utilization	239,528.80	
General Technical	44,666.47	
		655,423.31

LABORATORIES

Approval Requirements	99,670.00	
Testing, Inspection and General Laboratory Expenses	540,154.53	
Buildings and Equipment	35,825.46	
Bank Loan	31,375.00	
		707,024.99

PUBLICATIONS-GENERAL

AWARDS-Cost of Awards Made 2,167.58

Investment of Funds in Securities	5,471.88	
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7,639.46

GENERAL EXPENSES

Headquarters	262,590.12	
Promotion, Advertising and Research Plan	27,508.20	
		290,098.32

TOTAL ASSOCIATION EXPENDITURES 3,121,988.61

CASH

General Fund	122,408.10
Laboratories Fund	158,191.28
Promotion, Advertising and Research Plan Fund	165,507.40
Trust and Award Funds	
Educational Fund	588.20
Distinguished Service Award Fund	1,115.94
Meritorious Service Medal Fund	349.36
Natural Gas Supply Men's Fund	183.86
Gas Heating Progress Award Fund	3,200.00
	<u>5,437.36</u>
Total	451,544.14

TEMPORARY INVESTMENTS

UTILITY AND U. S. GOVERNMENT SECURITIES (at cost)	
General Fund	256,725.84
Laboratories Fund	39,510.00
Promotion, Advertising and Research Plan Fund	300,000.00
Trust and Award Funds	
Educational Fund	17,987.50
Distinguished Service Award Fund	9,725.00
Meritorious Service Medal Fund	4,500.00
Natural Gas Supply Men's Fund	35,089.84
	<u>67,302.34</u>
Total	663,538.18

BUILDINGS AND EQUIPMENT

LABORATORIES	
Buildings	383,040.70
Laboratories Equipment	156,048.99
Office Furniture and Equipment	46,569.76
	<u>585,659.45</u>
Less Depreciation Reserve	267,514.88
Total	318,144.57
ACCOUNTS AND INTEREST RECEIVABLE	
	92,521.70
HEADQUARTERS OFFICE	
Furniture and Equipment (Less Depreciation)	37,341.38
Library	2,438.44
Publications for Sale (Estimate)	3,000.00
Total	42,779.82

STATEMENT OF CASH BALANCES AND OTHER ASSETS

AS OF SEPTEMBER 30, 1949



AMERICAN GAS ASSOCIATION



Monthly

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Some of the speakers at opening day of 1950 Workshops (Left to right) William J. Schmidt, Long Island Lighting Co.; Edna Morrison, Michigan Consolidated Gas Co.; Dr. E. K. Weaver, Columbus, Ohio; Mary Huck, Ohio Fuel Gas Co.; Catherine Haigler, The Brooklyn Union Gas Company



Discussion leaders: (Left to right) Mrs. Eleanor Wiese, Newark, N. J.; M. Thelma Bly, Lincoln, Nebr.; Dorothy O'Meara, Bridgeport, Conn.; Vivian Marshall, New Orleans, La.; Fay Rudolph, Evansville, Ind.; Mrs. Vera Carter Ault, Denver, Colo.; Mrs. Florence Neely, Baltimore, Md.; Lois Wilson, Moline, Ill.; Flora Dowler, Pittsburgh, Pa.; Ruth Sheldon, Washington, D. C., and Dorothy Buck, Mansfield, Ohio



Home service views the future

Delegates from 33 states and Canada looked ahead to 1950 last month and came up with a wealth of ideas and suggestions to help home service implement its present position in gas industry operations. The occasion was the American Gas Association Home Service Workshop in Chicago, January 4-6. Irene Muntz, home service director, Rochester Gas & Electric Corp., Rochester, N. Y., presided as chairman of the A. G. A. Home Service Committee.

Food for serious thought was supplied at the opening luncheon by R. E. Ginna, vice-president, Rochester Gas & Electric Corp., speaking on the subject "A Home Economist—1960 Style."

"The future of the home economist in the gas industry lies in being made a definite and integral part of the sales organization," he declared. Home service representatives should be used to educate the prospect before he buys while salesmen in the gas industry should be employed to close the sale, he said.

"Success for the home engineer-economist requires creative initiative and effort," Mr. Ginna added. "To basic knowledge of food must be added more and more knowledge of the 'why' and 'how' of gas appliances. . . . Above all, do not overlook your fellow sales co-workers—the appliance salesmen, the servicemen, the turn-on and shut-off men, the meter readers, any and all of your fellow employees. Meet with

them, invite them to your demonstrations, share your 'whys' and 'hows' with them. They will help you anticipate and prepare for Mrs. Jones' woes and worries.

"It has been said time and time again," he concluded, "that the great force in load building is to meet the needs of the customers. Need I answer that the great force—both in number and ability—to meet the needs of our domestic customers is you—the home engineer-economist." (*Mr. Ginna's paper appears elsewhere in this issue of the MONTHLY.*)

Opening event on the Workshop program, a fast-moving symposium of home service activities, provided a wide variety of ideas based on special programs sponsored by nine different utility companies. Discussion leaders covered in detail "Old Range Round Up"—"Home Service at Product Meetings"—"Classes for Salesmen"—"Junior Achievement"—"Weekly Menus"—"Narrator in a Cooking School"—"We Print"—"The Laundry Demonstration"—"Brown'n Serve on the Sales Floor."

Participating in the symposium were: Mrs. Elyse Van Dyke, Alabama Gas Corp., Birmingham, Ala.; Kathryn A. Heffernan, Wisconsin Public Service Corp., Green Bay, Wisc.; Anne L. Goff, The Gas Service Co., Miami, Okla.; Mrs. Mary N. Hall, Elizabethtown Consolidated Gas Co., Elizabeth, N. J.; Ruth D. Kruger, Central Arizona Light & Power Co., Phoenix, Ariz.; Susan A. Mack, Boston Consolidated Gas Co., Boston, Mass.; Harriet Pruitt, Lone Star Gas Co., Dallas, Texas; Eleanor Marvin, The Manufacturers Light and Heat Co., Steubenville, Ohio, and Isabel McGovern, Minneapolis Gas Co., Minneapolis, Minnesota. (*Continued*)

PHOTO AT TOP—Headliners at second luncheon during the Workshop: (Left to right) H. Carl Wolf, A. G. A.; Dr. Henrietta Fleck, New York University; Mrs. Kathryn Johnson, Rockland Gas Co.; Irene Muntz, chairman; Carl H. Horne, Alabama Gas Corp.; H. Vinton Potter and Jessie McQueen, A. G. A.; Elizabeth Lynahan, The Peoples Gas Light and Coke Company

Impressive results of Workshop conferences were lauded by F. X. Mettenet, vice-president, The Peoples Gas Light and Coke Co., Chicago, who extended an official welcome to the delegates. Mr. Mettenet called attention to the fact that the Workshops produce valuable exchanges of information on home service operations and gas industry operations in general.

Greetings from the A. G. G. Residential Section of which the Home Service Committee is a part were expressed by the chairman, H. Preston Morehouse, Public Service Electric and Gas Company. He outlined the Section's new long-range program in domestic sales and indicated the part that home service is expected to play.

"Sponsored by the A. G. A." was discussed by Jessie McQueen, home service counsellor, who described the objectives and organization of the Association. Miss McQueen listed the benefits which A. G. A. supplies to a home service representative in a member gas company, pointing up one of the major benefits—sponsorship of the Workshops.

Sales and promotion

Promotion accents of the Workshop opened the first afternoon with a session on water heating and laundry appliances. "Our Magic Faucets—Promotion Afloat" was discussed by W. J. Schmidt, general sales manager, Long Island Lighting Co., Mineola, New York. Mr. Schmidt noted the information home service requires in explaining to women the advantages of automatic storage

water heating. He indicated that the primary reason for home service is the subtle selling possible in home service contacts, in supplementing the sales force and in following the equipment into the homes with an ever-alert observance of other needs for gas equipment.

Mr. Schmidt outlined the need for sufficient hot water in the laundry, and used charts to emphasize the economic value of promoting laundry equipment, including the automatic gas clothes dryer. In particular, Mr. Schmidt spoke of the special use of hot water in the automatic electric dishwasher which he said "would double the load revenue for gas water heaters on a job that must be done in every home, every day of the year."

Possible increased gas consumption from three modern labor-saving home conveniences—automatic electric dishwashers, automatic cycle washers, and the gas laundry dryer—represent a sizable market for gas consumption, the speaker declared. Home service, he added, can do a great job in securing most of this market for the gas companies in America.

"Research in Laundry Equipment," a talk by Dr. Elaine Knowles Weaver, associate professor in home economics at Ohio State University, backed up the recommendations Mr. Schmidt had made on the value of hot water in the laundry.

"Hot water is an absolute essential but I would say that hot soft water would be a better phrase in the laundry, Dr. Weaver stressed.

Describing the deposits on washed garments in hard water areas, she in-

dicated many problems in laundering could be eased when further research is done on water softeners and synthetic detergents. Using exhibits which showed the importance of adequate rinsing, the speaker compared the water consumption of automatic and conventional washers.

Reporting on research work in the washing of wool blankets, Dr. Weaver said that in the automatic clothes dryer the degree of shrinkage was small. Best results were achieved, she added, by using as buffers small cotton items such as towels and pillow slips and by drying to a point where a slight amount of moisture and steam was left. Each blanket was then stretched and brushed.

Demonstrations

"Portraits in Cooking" was the title of a demonstration on two "CP" gas ranges by Lucy Slagle, Atlanta Gas Light Co., assisted by Marion Chestnut of the same company. Directed to a group of club women, the demonstration not only contributed sales ideas on ranges but pointed up many important aspects of good demonstration technique.

On January 6, the day that the new 1950 gas refrigerator was first announced, a demonstration on refrigeration was given at the Workshop by Elizabeth Lynahan, The Peoples Gas Light and Coke Company. Preparation of food, features of the new box and its many uses in the kitchen, were all covered in the demonstration.

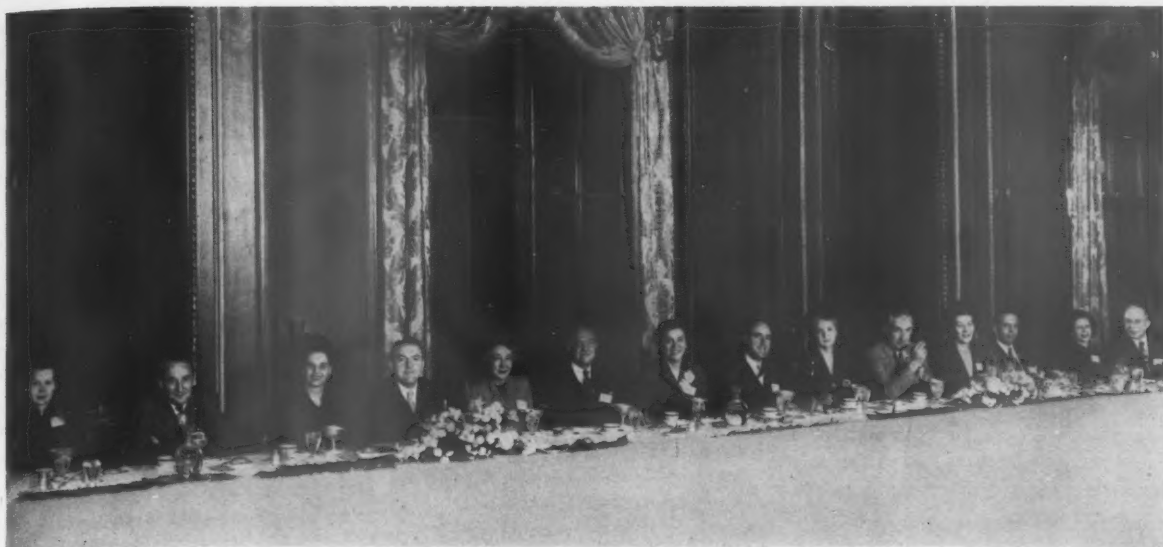
Two kinds of dealer-floor demonstra-



Isabel McGovern (left), Minneapolis Gas Co.; Susan Mack, Boston Consolidated Gas Co.; Ruth Kruger, Central Arizona Light & Power Co.; Harriet Pruitt, Lone Star Gas Co.; Anne Goff, The Gas Service Co.; Kathryn Heffernan, Wisconsin Public Service; Eleanor Marvin, Manufacturers Light & Heat



On stage: Action photograph of the cast in novel skit "Two Kinds of Dealer Floor Demonstrations" produced by home service department representatives from The East Ohio Gas Co., Cleveland, Ohio. Left to right are: Betty Dolinar, Virginia Mitchell, Dorothy Dean, Jane Schleicher, director, and Jeanne Loran



Opening luncheon: Jessie McQueen (left), A. G. A.; Harold Jalass, Cribben & Sexton; Elizabeth Lynahan, The Peoples Gas Light & Coke Co.; R. E. Ginna, Rochester Gas & Electric Corp.; Eleanor Morrison, Michigan Consolidated Gas Co.; F. X. Mettenet, The Peoples Gas Light & Coke Co.; Irene

L. Muntz, chairman; H. P. Morehouse, Public Service Electric & Gas Co.; Mrs. Kathryn Johnson, Rockland Gas Co.; B. H. Wittman, The Peoples Gas Light & Coke Co.; Dr. Weaver; W. J. Schmidt, Long Island Lighting Co.; Lucy Slagle, Atlanta Gas Light Co.; J. E. Humphreys, The Ohio Fuel Gas Co.

tions were presented by members of the home service department, The Ohio Fuel Gas Company. Announced by Jane Schleicher, the director, as a plan used for training work, the skit opened with a presentation of what should not be done on the sales floor. Major part of the skit was a conversation in which a well-informed home service director described the many features of a modern gas range to an interested customer. Miss Schleicher acted the part of supervisor assisted by Betty Dolinar, Dorothy Dean, Jeanne Loran and Virginia Mitchell.

A conducted tour of the nationally-

known gas company kitchens in Chicago was presented by Harry Swenson, director of the display and home planning department, The Peoples Gas Light and Coke Company. Mr. Swenson listed primary reasons for a kitchen planning center and showed how requests for planning work are answered.

Details of 1950 sales campaigns were outlined at the second day's luncheon by H. Vinton Potter, A. G. A. coordinator of promotion. Mr. Potter presented some amusing hats for the Clean-Up Campaign in January; the "Size 'Em Up" promotion in February; the Spring Style Show in (Continued on page 46)



Ruth Kruger (left), Central Arizona Light & Power Co., and Lois Schibley, Tucson Gas Electric Light & Power Co., discussing Western home service activities during the 1950 Workshop



Visitors from New England gas companies at the Workshop in Chicago: (Left to right) H. Dorothy Keller, Blackstone Valley Gas & Electric Co.; Dorothy O'Meara, The Bridgeport Gas Light Co.; Susan Mack, Boston Consolidated Gas Co.; Thelma Hunter, New Bedford Gas and Edison Light Company



Visitors from Alabama Gas Corp., Atlanta Gas Light Co., Arkansas-Louisiana Gas Co., Knoxville Utilities Board, Lone Star Gas Co., Mississippi Gas Co., Nashville Gas & Heating Co., New Orleans Public Service, Oklahoma Natural Gas Co., Savannah Gas Co., United Gas Corp., West Tennessee Gas

Gas house heating load—insurance

By LYLE C. HARVEY

*President, Affiliated Gas Equipment, Inc.
Cleveland, Ohio*

It is a simple and fundamental fact that when considering the tremendous battle of fuels which is already started and which will continue at an even more rapid pace, the heating load is the only load where electric competition is not an important factor.

Perhaps, of even more significance is the fact that the heating load is more important than anything else in securing and maintaining the industry's rightful position in the other residential uses for gas. The heating load might well be considered the "Achilles' heel" of the electric industry. To prove this statement, check the situation in your own territory, check the percentage of gas cooking,

Abridged version of paper presented before annual meeting of The Metropolitan Gas Heating and Air Conditioning Council in New York, N. Y., on December 14, 1949.

gas refrigeration and gas water heating in gas-heated homes versus the same percentage in coal-heated or oil-heated homes. These figures, I am sure, will prove effectively the importance of gas heating in our industry and its primary place in protecting and increasing the other domestic loads.

During the past few years gas men have seen many attractive new home developments in their territories go to automatic oil heating, followed in many cases by the installation of all-electric kitchens in spite of the best sales efforts by gas companies. In almost every case, gas heating could have saved the day and insured all-gas homes, just as it is doing in Cleveland, Detroit, Pittsburgh and other Midwest areas where gas heating is dominating the new home field.

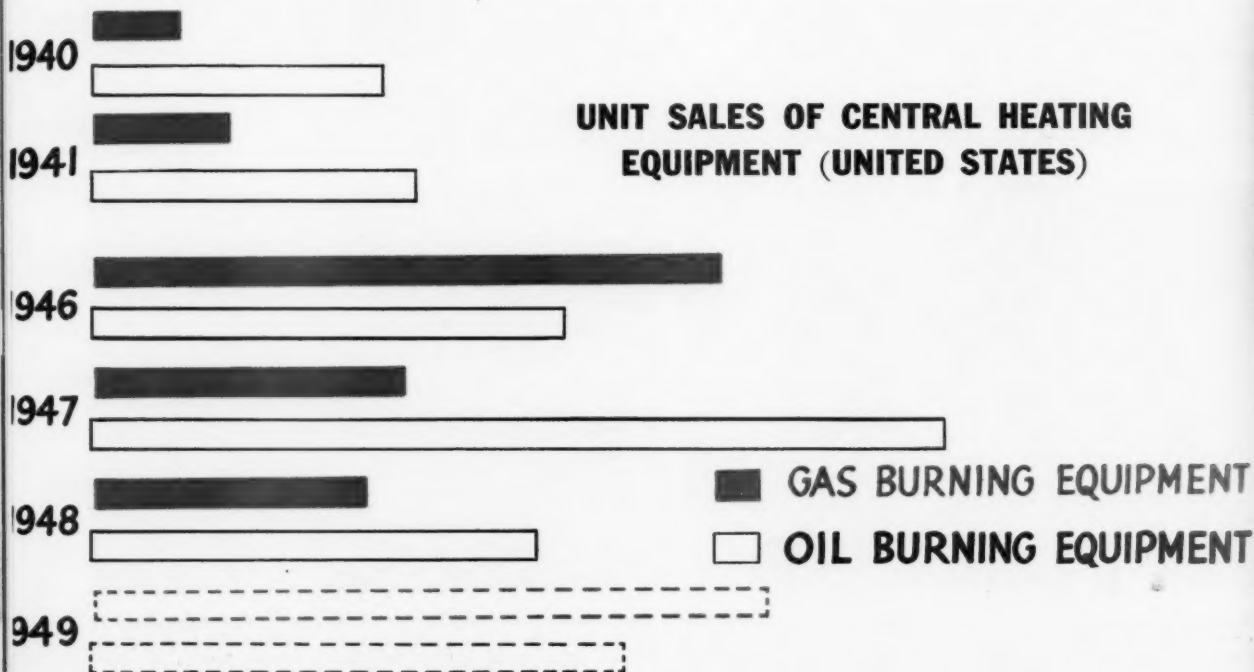
Accompanying this article are four charts I have prepared which deal mostly with the national picture, but which are important to an understanding of the complete gas heating situation.

Chart below is a direct comparison of

the number of yearly installations of automatic oil burning central equipment versus gas heating central equipment for the past nine years. The war years have been eliminated because of restrictions in effect at that time. It is interesting to note that in the two years prior to the war there were approximately three times as many oil heating plants installed as gas central plants. In 1946, when wartime restrictions were lifted for the first time, even though oil was not too plentiful, it is gratifying to note that there were more gas heating central plant installations than oil.

The demand for gas expanded so rapidly that restrictions were placed on gas heating in most areas of the country. As a result, in 1947 oil heating installations continued to expand at a very rapid rate. Actually, in 1947 oil again led gas by a ratio of three-to-one as it had in years prior to the war. In 1948, oil heating installations suffered a considerable slump and gas was still held

UNIT SALES OF CENTRAL HEATING EQUIPMENT (UNITED STATES)



e modern all-gas homes

back by restrictions in many areas but, even so, we were able to considerably improve the previous three-to-one ratio of oil over gas.

In 1949, restrictions on gas heating were removed in many areas so that for the second year in history it is predicted there will be more gas heating, central plant installations than oil installations.

A study of the cumulative number of central heating installations in use for gas and oil shows that gas and oil continue to gain in total number of central heating installations each year. There is every indication that this trend will continue nationally due to the demand for automatic heating equipment.

It is also interesting to note the amount of gas heating saturation nationally as it exists today (see chart below). Figures at the top of this chart include all homes and all types of heating so that the percentage of saturation includes gas space heaters and floor furnaces. Figures at the lower portion of the chart are centrally heated homes only,

which is a much more accurate measure for the Northern market. Note that even with the rapid increases in gas heating there is still a large percentage of the market to be tapped.

An interesting case history is the saturation picture in a typical Midwestern situation (see Figure 3). I have selected my home town of Cleveland, Ohio.

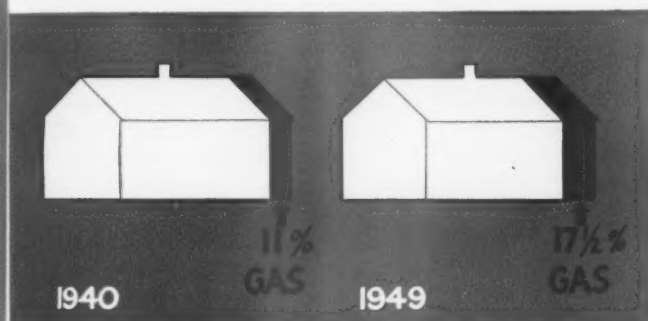
In 1940, the saturation of gas-heated homes in Cleveland was about ten percent. By the end of this year, the saturation will be about 50 percent, and it is predicted that within a very few years, if sufficient supplies of gas are available, this saturation will grow to between 70 and 80 percent.

Actually, The East Ohio Gas Company will add to their lines this year a number of gas heating installations equal to just about ten percent of their meters. These are tremendous figures compared to the saturation figures we thought about before the war. Bear in mind, however, that in Cleveland, with natural gas at \$.55 per thousand for

1,100 Btu gas, people just cannot afford to heat with any fuel other than natural gas.

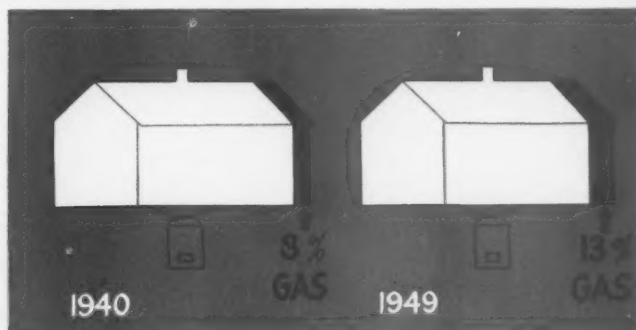
At the end of 1949, it is predicted that the saturation of gas-heated homes in New England will be about three percent and in the New York area, five percent, so that there is no question regarding the market potential so far as these Eastern areas are concerned.

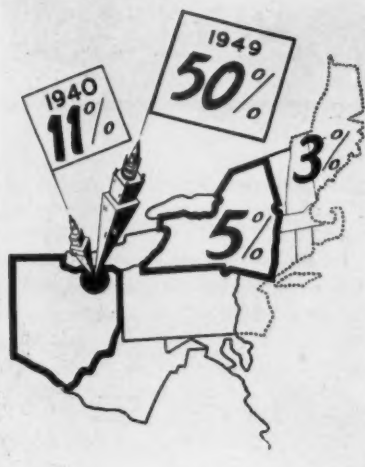
A comparison between the number of gas central heating plants installed by a typical gas utility in the New York area with the number of such plants installed nationally shows that 1,200 gas heating installations were made by this company in 1937 and that the same company serving the same territory installed 1,500 units in 1949. Nationally, however, over ten times the number of gas central heating installations were made in 1949 that were made in 1937. This again points out the fact that the Eastern market of the country has not enjoyed the tremendous increase in the popularity of gas as a heating fuel.



GAS HEATING SATURATION
ALL HOMES

CENTRALLY - HEATED HOMES





In city after city gas heating could have saved the day and insured all-gas homes just as it is doing today in Cleveland—LYLE C. HARVEY

In the territory of a typical New York utility, there has been a steady increase in oil and coal prices, while the gas heating increase came suddenly during the past two years. It is still interesting to note, however, that while the gas cost has increased some 75 percent, the cost of coal and oil have doubled during the past ten-year period. Therefore, on a relative basis, even with the sudden rapid increase in gas heating cost, gas is in a far better position in relation to competition in this area in 1949 than it was in 1940. Also, do not overlook the fact that gas today is the popular fuel and has far more acceptance publicly than it had before the war.

At the risk of repeating some things already known, it would be well to further summarize the gas heating situation nationally.

Coal strikes and oil shortages have helped to increase both the prices and the dissatisfaction associated with the use of both these fuels. As more and more people have installed gas, the desirability of gas as a fuel has gone up geometrically. In fact, the interest in gas has skyrocketed so fast and so high that in 1946 most utilities sold all the gas available and were forced to discontinue or to limit added installations. The seller's market that such conditions quickly produced caused even more interest in gas fuel and a general decision by most people that they would go to gas heating as soon as possible.

We used to say that one of the ob-

stacles in the sale of gas for domestic purposes was that it lacked glamour. It was not looked upon as the most modern fuel. You had to have something that used electricity if you wanted to get the sex appeal that helped boost sales. Today there is no other fuel that carries the interest, the romance, the modern, up-to-the-minute glamour that gas does.

When the National Housing Agency analyzed the type of fuel proposed for 629,000 dwellings to be built under the Veterans Emergency Housing Program, they found that gas was the choice of 52 percent. Coal and oil were far behind with 27 percent and 21 percent respectively. When one of the leading architectural magazines asked 1,000 architects their first choice for heating fuel, 84 percent said gas.

During the past year, private enterprise spent about one billion dollars to bring natural gas to more people. This billion came from thousands upon thousands of investors who see in gas the fuel of the future—and they are so sure of it that they are willing for the most part to buy these securities, not on the basis of present earnings but on the basis of earnings estimated for the future—two or three years from now. At the minute, the accepted fuel of the future is gas.

I heartily commend as required reading the article on natural gas in the December issue of *Fortune Magazine*. I would like to quote one paragraph covering the results on Staten Island:

"In 1948, it will be recalled, New York & Richmond lost \$45,000. In its first natural gas year the company anticipates a new profit of \$200,000, after a rate reduction of \$230,000, amounting to a cutback of 11 percent in Staten Island gas bills. In addition, the company will earn \$125,000 to apply on the fast amortization of its expense for appliance adjustments—a sum that will also be subtracted from consumer bills after five years, if other costs remain stable. The resulting change in New York & Richmond's picture is the difference between minus \$45,000 and plus \$555,000 on the basis of 1948 gas rates. This is quite enough to justify the evangelical pronouncement of New York & Richmond's president, John Kohout: 'Natural Gas is our salvation.'"

Of course, Staten Island had the advantage of converting to straight natural gas. In most of the Eastern utilities, natural gas will be used, at the start at

least, primarily for enriching purposes which will not offer the same immediate great savings possibilities. The safest assumption that persons in the gas heating sales end of the business can make at this time is that there will be very little, if any, immediate reduction in gas house heating rates.

Certainly, you are going to have to sell gas as a premium fuel in comparison with coal and oil costs. This is nothing new, however, as you have always been confronted with this problem, and gas should carry a premium over other fuels because of the comfort, convenience and cleanliness which it offers. I am sure that the best planning will be to prepare all of your sales efforts along these lines in order to get ready for the situation which is rapidly approaching where you will be expected to greatly increase the gas heating load.

One of the factors contributing to the tremendous swing to gas for residential heating nationally is the element of cost. Natural gas has brought with it lower rates. But cost is not the only factor—it is not even the most important factor.

In a few areas, gas actually costs less than other fuels. But this is the exception and not the rule. There is absolutely no rhyme or reason why anyone should not expect to pay more for gas than for other fuels—it's worth more. And in the small, insulated, compact, modern homes that are being built today a substantial premium for gas, percentage-wise, amounts to a relatively small number of dollars. When this amount is further divided into the eight months of the heating season, the extra cost of gas drops into unimportance.

Low installation cost

Furthermore, the first cost of an oil installation is more than that of a gas installation. This price advantage will pay for the added gas cost for a year or two, by which time price advantages of natural gas will create a favorable improvement.

No, price should not stand in the way of a very substantial quantity of gas heating sales, right here and right now.

A word of caution, however. Natural gas is not a cure-all. Natural gas, in spite of its many advantages and all of its glamour, still must be sold. Each city or area represents a decidedly different situation, so far as the acceptance of gas heating is con- (Continued on page 64)

1950 plans off to flying start

American Gas Association's unified 1950 promotions on domestic gas appliances are off to a flying start with the "Size 'Em Up" campaign under way and plans well advanced for the Spring Style Show. The entire long-range promotional program will be explained to the industry late in February and March during a "grass roots" tour consisting of seven dramatic regional sales meetings. The series will enable all sections of the gas industry to achieve even better coordination than was obtained last year in such strikingly successful sales promotions as the Court of Flame Water Heater Campaign and the Old Stove Round Up.

The Size 'Em Up promotion of automatic gas clothes dryers and automatic gas water heaters will be backed up by national advertising for the months of February, March and April. Early response to the campaign indicates that more gas companies will use this promotion in their local territories than in any previous water heater campaign. The current effort marks the first national A.G.A. campaign on automatic gas clothes dryers.

The Spring Style Show promotion on automatic gas ranges, scheduled for April, May and June, is the second of the 1950 campaigns. The newest styles and features in modern gas ranges will be launched against a background of Easter parades, flowers, bunnies, new hats and spring clothes. "How to do it" brochures prepared by A.G.A. Promotion Bureau are being mailed to gas companies with a more complete selection of display materials than ever before. The A.G.A. portfolio provides details on display ideas for both sales floor and show window, local advertising, premiums and give-aways, and on the complete organization and operation of a sales floor style show using

models and the latest in spring and summer women's clothing. Gas companies are expected to tie-in closely, manufacturers are highly enthusiastic and several have arranged to promote a Spring Style Show special model.

The regional sales meetings will be sponsored by A.G.A. Residential Gas Section and will outline plans for a year-round series of promotional events which were approved last year by the Association's General Promotional Planning Committee. In New England and in two southern cities, the meetings will be sponsored in cooperation with New England Gas Association and Southern Gas Association, respectively.

The schedule will begin at the Copley Plaza Hotel in Boston, Mass., on February 20. John J. Quinn, vice-president, Boston Consolidated Gas Co., will serve as chairman of the meeting which will commence with a luncheon at the hotel and will continue through the afternoon.

On the same date, a similar regional meeting will be held at the Sheraton Hotel in St. Louis with R. J. Vandagriff, general sales manager, The Laclede Gas Light Co., as chairman. On February 21, Irving K. Peck, vice-president, The Manufacturers Light & Heat Co., will be chairman of a regional meeting at the Hotel William Penn, Pittsburgh.

First of the regional meetings under the joint sponsorship of A.G.A. and SGA will be held at the Rice Hotel in Houston, Texas, on February 22. Frank C. Smith, president, Houston Natural Gas Corp., and chairman, A.G.A. General Promotional Planning Committee, will serve as chairman at the Houston meeting. The Schroeder Hotel in Milwaukee, Wisc., will be the scene of the next regional meeting on February 23. B. T. Franck, vice-president, Milwaukee Gas Light Co., will officiate as chairman.

On February 27 at the Hotel Statler,

Hugh H. Cuthrell, president, American Gas Association and vice-president, The Brooklyn Union Gas Co., will call the New York City meeting to order. The second meeting sponsored by Southern Gas Association, and the last of the series of regional sales meetings, will be staged at Birmingham, Ala., at the Hotel Tutwiler on March 2. Carl H. Horne, vice-president, Alabama Gas Corp., and vice-chairman, A.G.A. Residential Gas Section, will serve as chairman at the Birmingham session.

A complete presentation of the year's promotional plans will be made at each meeting. After the opening remarks by the chairman, sales executives attending will be given a presentation on the A.G.A. 1950 sales promotion calendar, a large-sized wall calendar prepared by the A.G.A. Promotion Bureau which lists for each month the sales promotional activities scheduled throughout the year. Publication dates of national magazines carrying A.G.A. advertising in support of the various campaigns are shown on the calendar. Utilities and dealers are urged to coordinate their own advertising with this national advertising for maximum effectiveness.

Each meeting will include a preview of the Style Show, comprised of a comprehensive presentation of the participation planned by A.G.A. and the range manufacturers of GAMA, a detailed outline of the material in the sales portfolio with suggestions as to how this material can be used most effectively; ending with a bonafide Style Show with live models and stage props to emphasize the style features of today's modern gas range.

Following the pattern established by previous regional gatherings, sales executives attending the regional meetings will stage similar Style Shows in their own cities, or will cooperate with their local dealers in staging style promotions.

*Total 1949 sales volume rises
despite impact of mild winter weather*

LP-gas continues steady growth

By K. W. RUGH¹ and
E. O. MATTOCKS²

*Phillips Petroleum Company
Bartlesville, Oklahoma*

The liquefied petroleum gas industry continued its steady growth of increased sales during the year 1949. It is estimated that during 1949 the total volume of liquefied petroleum gas marketed in the United States was 2,725,000,000 gallons, an 8.5 percent increase over the volume sold in 1948.

The fact that the increase in sales volume during 1949 was 8.5 percent when increases during the past few years have ranged from 25-30 percent does not in itself indicate that continuing lesser percentage increases in marketed volume can be expected during the next few years. The percent increase in 1949 was low because of mild weather during the winter of 1948-1949 in those areas where liquefied petroleum gas is used extensively for house heating and because many new natural gas transmission lines were placed in operation during the year. Some of the liquefied petroleum gas used by utilities was displaced by this new supply of natural gas. Over a period of years it can be assumed that normal winter temperatures and demand for liquefied gas to augment natural gas supplies during peak conditions will again create the normal increased demand for liquefied petroleum gas and the industry will again enjoy its traditional large percentage increases.

It is estimated that the volume of LP-gas sold for domestic purposes in 1949 reached 1,650,000,000 gallons. This represents an increase, over 1948 sales of 12 percent. Demand from present consumers for additional gas appliances

and the demand from new consumers for LP-gas for cooking, water heating, refrigeration and space heating was as much in evidence as during any previous year. The winter of 1948-1949 was relatively mild throughout wide areas in which LP-gas is used for space heating, resulting in a decrease in demand for the product during the heating season. Nevertheless the increased demand from new consumers together with the increased year around demand from existing consumers resulted in an appreciable increase in total demand for household use of LP-gas.

Estimates show that there are 6,500,000 homes enjoying the use of LP-gas service in farm and suburban homes beyond the gas mains.

The volume of LP-gas used in 1949 for industrial purposes, internal engine operation and other miscellaneous industrial uses is estimated at 310 million gallons. This represents an increase of 0.3 percent over 1948. During 1949 many industrial plants turned to LP-gas for their major source of fuel. In addition, as natural gas lines were extended making natural gas available to many industrial plants, some of these plants installed LP-gas standby installations. Continued demand for LP-gas for either constant or standby use indicates a continuing expanded market for LP-gas to industrial plants.

For gas manufacturing purposes it is estimated that 240 million gallons were used in 1949, an increase of one percent over the volume used for gas manufacturing in 1948. The gas manufacturing industry uses LP-gas in the smaller communities to make the complete sendout of gas and in the larger communities to augment manufactured or natural gas supplies during peak load conditions or to replace manufactured or natural gas during emergency periods. Approximately 400 gas manufacturing plants in the country use liquefied petroleum gas

as their sole source of supply. In the larger communities where liquefied gas is used to augment supplies during peak load periods or as emergency standby, gas companies have installed large storage for LP-gas. Because of the mild 1948-1949 winter the demand on the part of these utilities for LP-gas was not comparable to other years of normal winter weather. Now that these utilities are again connecting to gas appliances for domestic space heating and other uses it is anticipated that there will be increased demands on the part of the gas industry for liquefied petroleum gas.

LP-gas is continuing to be accepted as an ideal raw material by the chemical industry for the production of chemical intermediates. A number of plants under construction or just completed in 1948 have been on stream during most of 1949. It is estimated that chemical manufacturers used 525 million gallons of LP-gas during 1949, 6.9 percent over that consumed in 1948.

During 1949 the use of LP-gas for tractor fuel was greatly accelerated. This increased use was brought about not only by the recognition of the economical and mechanical advantages from its use, but also by the development of a low-cost method whereby LP-gas could be utilized in the conventional carburetion system interchangeable with the liquid fuel for which the engine was originally equipped. Considerable interest is being shown in the use of LP-gas to fuel trucks and busses on the highway, and a continuing demand exists for LP-gas to fuel engines in heavy duty construction and mining equipment.

Interest in safety continued at a high level during the year. The Interstate Commerce Commission issued new specifications governing the transportation of liquefied petroleum gas in cargo tanks

(Continued on page 53)

Gauging LP-gas tank car at loading rack

¹ Manager, Philgas Division—sales department, Phillips Petroleum Company.

² Technical representative, chemical engineering department, Phillips Petroleum Company.

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THLY

MARKETED PRODUCTION OF LP-GAS

Year	Total Sales		Distribution—1000 Gal.							
	Gallons In Thousands	Percent Increase	Domestic (1)	Percent Increase	Ind. and Misc. (2)	Percent Increase	Gas Mfg.	Percent Increase	Chemical Mfg.	Percent Increase
1922	223								
1923	277	24.4								
1924	376	36.0								
1925	404	7.2								
1926	465	15.2								
1927	1,091	134.6								
1928	4,523	314.6	2,600	400	1,500		
1929	9,931	119.6	5,900	126.9	1,500	275.0	2,500	66.7		
1930	18,017	81.4	11,800	100.0	2,200	46.7	4,000	60.0		
1931	28,770	59.7	15,295	29.6	7,172	226.0	6,303	57.6		
1932	34,115	18.6	16,244	6.2	8,167	13.4	9,703	53.9		
1933	38,931	14.1	16,626	2.3	13,987	71.3	8,318	-14.3		
1934	56,427	44.9	17,681	6.3	32,448	132.0	6,298	-24.3		
1935	76,855	36.2	21,380	20.9	47,894	47.6	7,581	20.4		
1936	106,652	38.8	30,014	40.4	67,267	40.4	9,371	23.6		
1937	141,400	32.6	40,823	36.0	62,610	(3)	11,175	19.3	26,792	20.5
1938	165,201	16.8	57,832	41.7	62,694	0.0	12,386	10.8	32,299	27.5
1939	223,580	35.3	87,530	51.4	93,723	49.4	15,435	24.6	26,892	-16.7
1940	313,456	40.2	134,018	53.1	124,482	32.8	20,285	31.4	34,671	29.0
1941	462,852	47.7	220,722	64.7	172,669	38.6	25,255	24.5	44,206	27.5
1942	585,440	26.5	303,857	37.6	197,179	14.2	31,366	24.2	53,038	20.0
1943	675,233	15.3	344,962	13.6	237,396	20.4	37,519	19.6	55,356	4.4
1944	898,071	33.0	445,617	29.2	254,590	7.3	45,879	22.3	151,985	175.0
1945	1,067,979	19.0	533,262	19.7	256,577	0.8	53,849	17.4	224,291	47.5
1946	1,410,370	32.1	758,466	42.2	253,745	-1.1	86,660	61.0	311,499	38.8
1947	2,008,262	42.4	1,150,538	51.7	274,125	8.0	169,332	95.4	414,267	33.0
1948	2,511,160	25.0	1,473,289	28.1	309,269	12.8	237,638	40.3	490,964	18.6
1949	2,725,000	8.5	1,650,000	12.0	310,000	0.3	240,000	1.0	525,000	6.9

Sale of liquid petroleum gas confined primarily to bottled gas business prior to 1928

(1) Household use plus other requirements by these customers such as irrigation pumping, tractor fuel, flame welding, chicken brooding and similar uses. Included also is LP-gas sold by domestic distributors but used for industrial purposes, internal combustion engine fuel and for gas manufacturing purposes.

(2) Includes LP-gas sold for fueling internal combustion engines.

(3) Not comparable due to segregation of chemical manufacturing. REMARKS: In this table total sales for all years except 1949, were obtained from U.S. Bureau of Mines reports. Distribution for the years 1931 to 1948 inclusive, was obtained from the same source. All other volumes were estimated by the writers. The total sales

volume includes all LP-gas (propane, butane and propane-butane mixtures) when sold as such. Until 1944 the sale of pentane when sold for any purpose other than motor fuel blending was included. Since then it has been excluded. It does not include butane when blended with heavier petroleum fractions for motor fuel purposes. Intercompany sales transactions such as purchases of LP-gases by one company from other companies and resold as LP-gases have been eliminated in order to avoid duplication of sales figures. The data do not reflect sales of LP-gases used directly by the producer at the point of production for fuel polymerization, solvent de-waxing, etc. Neither do the figures include sales of hydrocarbons to plants manufacturing synthetic rubber or aviation gasoline or their components.

Home service must work jointly with . . .



. . . advertising people



Home service 1960 style—integrated

By R. E. GINNA

*Vice-President
Rochester Gas & Electric Corp.
Rochester, N. Y.*

To reach and attain its inherent goal, home service now must be taken out of its infant wrappings and protective coating of customer relations and public relations, good and profitable as such a role may be.

The future of the home service economist lies in being made a definite and integral part of the sales organization, with all that such a move implies. As such, home service's most efficient and economical role is to educate the prospect before he buys. Appliance salesmen are too valuable to us and too costly to themselves to spend time in training and

educating prospects for major home appliances. The salesmen must be used to canvass prospects, to tie together all the loose ends and close the sale.

I am continually astounded at the prospective buyer's lack of knowledge about the up-to-dateness of various home appliances and their many time-saving and money-saving features. Customers just do not know enough about what is available to meet their needs. As a result, our salesmen are doing too much spade work before reaching "pay dirt."

Recently I was privileged to sit in at a round-table discussion with some well known economists who were discussing the decade 1950-1960, what business conditions might be then and what risks of investment were justified. There seemed to be general agreement that there would be no serious depression; that for one reason or another we were rapidly becoming a nation of middle-class families; that the domestic servant was no more and that, more and more,

automatic and labor-saving equipment would become an essential part of our American homes. We also agreed that to utility managements this means an ever-increasing demand for complete utility services, and therefore large investments in utility plant expansions were sound and would attract investors.

I believe there are economic factors and forces that justify such a favorable outlook. On the other hand, reverting to my interest in and knowledge of sales and realizing the job ahead, I had doubts that the future was quite so rosy. For example, I pointed out that if every home were going to be amply and properly equipped with appliances, somewhere in the process much home engineering educational work had to be done.

"Educate whom?" they said. "Why, the woman of the house," I replied. "Yes, and the man, too!"

It has been my observation over many years that there is no consistent organized mass effort to acquaint utility cus-

Abstracted version of address which opened A. G. A. Home Service Workshop in Chicago, January 4-6, 1950.



Part of the sales organization

tomers with current changes and improvements in major home appliances. Sure, we go to great lengths to educate ourselves about new appliance developments. We give our salesmen pep talks and demonstrations. The manufacturers have previews and home service folks learn too, sometimes, I am afraid, by telepathy or just mere exposure to the new models. There we generally let the job rest so far as home service departments are concerned. The magazines have done fine work with stories and information on new appliances and household techniques. But in my judgment these efforts are not enough to accomplish what I have in mind for home economists.

Obviously, a successful sales effort must be continuous, dynamic and everlastingly full of hard selling. The sales job can be made much easier for a merchandising operation if the potential buyers are saturated with knowledge before the appliance salesman comes

around to ring the door bell. Who can do this advance educational work better than home service!

There is one fundamental step required to re-style home service for 1960. First, it must be recognized as an integral and valuable part of the sales effort. This means working jointly with salesmen, advertising people, appliance servicemen, and appliance testers and researchers. Home service representatives will be required to add to their basic training in know-how about cooking, nutrition, foods, laundry, etc., a special knowledge of equipment, its operation and performance standards.

Home engineer economists do not supplement but rather vitally complement the appliance salesmen's activities. Examine this formula for a good recipe:

Point 1—The ingredients must be in the right proportion.

Point 2—The ingredients must be measured correctly.

Point 3—The ingredients must be mixed properly—neither an under-mix nor an over-mix.

Point 4—The ingredients must be baked properly.

If any one of these steps is missing, the operation is a failure. Our customers start right out behind the eight-ball because they do not know the "how" of proper temperature control and flow, and the "why" of old style pans and utensils impeding proper heat transfer and even heat distribution in a new appliance. Too many customers do not know how much they waste with old and inferior appliances.

It is important not to get lost in pots and pans and above all not to get lost in the dough! Do not rely on past successes. Just as old recipes and methods must be adapted to new and improved appliances, so must the home engineer economist adapt herself to continuing and everlasting (Continued on page 63)

Workshop notes

● Following are excerpts from an inspirational address by C. S. Stackpole, vice-president and general sales manager, Chrysler Corp., Airtemp Division, Dayton, Ohio. Mr. Stackpole's talk was the closing event at the 1950 A. G. A. Home Service Workshop in Chicago last month and aroused great enthusiasm among the delegates.

HERE ARE a few suggestions to put in your "tote" bag and take home:

(1) Go home determined to do a better "do care" job than ever before. Be sure that you are among those who do care about doing a better job every day. Do care enough to contribute with all your energy and brains to make your company better understood by its customers, helping women in the home to find new leisure through greater use of gas service. Do care about stretching out a hand to help the other folks who are working with you so they will know and love their jobs better.

(2) Don't be satisfied with the accepted way of doing things. Find new ways by trying them out. Practice what I call "home service imagineering."

(3) Do a lot more thinking about the job. If you are using up the 24-hours, seven days a week, to accomplish the 26-hours per day of work and thought necessary to keep ahead of the job today, then fine. But if not, follow the suggestion of Dorothy Shaver, president, Lord and Taylor, New York: "Use every spare moment to do some thinking about your business—in the office, in your boss' office, in the bus, streetcar, train or plane. Carry a notebook and pencil, always ready, day or night, to jot down ideas . . ."

(4) Be sure to make enthusiasm a habit in 1950. Be enthusiastic about everything you do, in your daily contacts, at your work as well as on the outside. Move a little faster, talk a little faster, become intense and get excited about what you are saying, thinking and doing.

(5) Develop your sense of humor.

(6) Develop your voice; perhaps take a course in voice training.

(7) I suggest a reading of Claude M. Bristol's book "The Magic of Believing." Read particularly Chapter 8.

(8) Continue to make service more than ever your business. Real service has aptly been defined as "doing humbly those things which are to the advantage of most people or doing things in the interest of others." That is the spirit in which you should continue to serve your company and this marvelous gas industry.

Yours is an industry that is growing bigger but younger every passing year—an exciting and challenging business. It presents tremendous opportunities for today and the future. It is glamorous to those of us who are energetic, ambitious and ingenious; it's attractive to capital and just ordinary folk. All it needs for continued success is the sound judgment, common sense, know-how, hard work and loyalty of folks like the girls in home service.

Home service

(Continued from page 37)

the spring; the Comfort Hat for all-year air-conditioning, heating, incineration and refrigeration in the summer, and the Old Stove Round Up in the fall.

Ways to increase the efficiency of a home service department were shown in a series of presentations on home service operation. Mary Huck, The Ohio Fuel Gas Co., presented a wealth of ideas to help departments, both small and large, carry out an efficient program. "Make the Most of the Home Call" was a similar presentation on this special feature of home service work by Mrs. Ellen Bridges, The Gas Service Co., Pittsburgh, Kansas. In "Planning the Home Service Demonstration," Catherine Haigler, The Brooklyn Union Gas Co., listed 20 methods of getting ready for a smooth-running demonstration.

Special home service activities were presented next by two experienced home service directors. "Testing Equipment for Customer Use in the Test Kitchen and on the Sales Floor" by Mrs. Mary Belle Burnett, The Cincinnati Gas and Electric Co., outlined the many reasons for effective promotion of equipment through tests in the home service department. In customer tests of equipment, Mrs. Burnett described some of the demonstrations carried on in Cincinnati.

A major activity in many home service departments is work with young people in the community. As an over-all picture of this project in a number of companies, Eleanor Morrison, Michigan Consolidated Gas Co., Grand Rapids, outlined different phases of this program under the title "A Date With the Future."

"To Become Professional" was described by Mrs. Mary Louise Bohn, The Laclede Gas Light Co., St. Louis, stating that it is necessary not only to advance in home service work in the company but also in the director's confidence and esteem. Mrs. Bohn described opportunities in professional work in the community as a means of growth on the job.

An outstanding feature of the Home Service Workshop this year was the initiation of a new educational method of discussion described as "group dynamics." Dr. Henrietta Fleck, head of the home economics department at New York University, who is nationally known for her research in this new form

of education, outlined the duties of the principals in group dynamics. She stressed the importance of the discussion leader, the recorder, the observer who assists in keeping the discussion "on the beam," and most of all, the members of the group. The concluding report of the discussion was shown to be particularly valuable.

Home service registrants at the Workshop were individually assigned to 12 discussion groups. At the end of the two-hour discussion period, the group leaders presented two-minute talks on the general theme "improving the efficiency of a home service department."

Leaders were: Mrs. Vera C. Ault, Public Service Co. of Colorado, Denver; M. Thelma Bly, Central Electric & Gas Co., Lincoln, Nebr.; Dorothy Buck, The Ohio Fuel Gas Co., Mansfield, Ohio; Flora G. Dowler, The Manufacturers Light & Heat Co., Pittsburgh, Pa.; Thelma Holmes, Savannah Gas Co., Savannah, Ga.; Vivian L. Marshall, New Orleans Public Service, Inc., New Orleans, La.; Mrs. Florence J. Neely, Consolidated Gas Electric Light and Power Co. of Baltimore; Dorothy F. O'Meara, The Bridgeport Gas Light Co., Bridgeport, Conn.; Fay Rudolph, Southern Indiana Gas & Electric Co., Evansville, Ind.; Ruth Sheldon, Washington Gas Light Co., Washington, D. C.; Mrs. Eleanor Wiese, Public Service Electric & Gas Co., Newark, N. J.; Lois Wilson, Iowa Illinois Gas & Electric Co., Moline, Ill.

Delegates agreed that the closing talk pointed up their job and their industry as something of which to be proud. C. S. Stackpole, vice-president and general manager, Chrysler Corp., Airtemp Division, aroused the enthusiasm of the group. (See excerpts at left.)

Members of the Program Committee which presided at the Workshop were as follows: Eleanor Morrison, Michigan Consolidated Gas Co.; Elizabeth Lynahan, The Peoples Gas Light & Coke Co.; Mrs. Kathryn O. Johnson, Rockland Gas Co., Inc., Spring Valley, N. Y.; Irene Muntz, Rochester Gas & Electric Corp., and Jessie McQueen, A. G. A.

Social hours were sponsored by equipment divisions of Gas Appliance Manufacturers Association and planned by James I. Gorton, "CP" promotional director. The first day's social hour was sponsored by the refrigeration division through Servel, Inc.; the second, by manufacturers of "CP" gas ranges.

Consolidated Edison Company uses
novel approach to house heating survey

Ingenuity builds gas load study

Consolidated Edison is making gas heating load tests on 400 residential and 400 commercial customers' installations for use in engineering studies. The tests have been going on at 800 locations in Manhattan, the Bronx and Queens since November 1 and are intended to run for a year.

The load survey is being made to obtain information relating to the effect of the customers' loads on the company's facilities. Natural gas will soon become part of the supply on the system and, for engineering purposes, it is desirable to obtain data for a sample of heating customers while manufactured gas is the only source of supply.

The data sought, on each gas meter under test, is the monthly cubic foot gas consumption, the highest rate of consumption for any half-hour period during the year and the rate of con-

sumption for each half-hour in certain months in the heating season. The Rate Engineer's Department initiated these load tests and will compile and analyze the data obtained. Among some of the uses of these data will be the determination of diversity between heating customers as individuals and as groups, and their relation to other gas customers, as well as the construction of daily load curves for these customers in relation to the total load curve for the system.

In order to get this measurement of demand, the Meter Engineering Bureau, working closely with the Meter Bureau, developed a register mechanism which is mounted on, and operated by, a gas meter. The equipment used and its method of application is believed to be a brand new approach; thus it was necessary to find the answers to a great many new problems.

Engineering and design were handled by Lawrence A. Pagano of the Meter Engineering Bureau. Construc-

tion of a working model, assembly of gas demand meters in quantity and their installation in the field was done under the direction of Frank R. Keller and James Webb of the Meter Bureau.

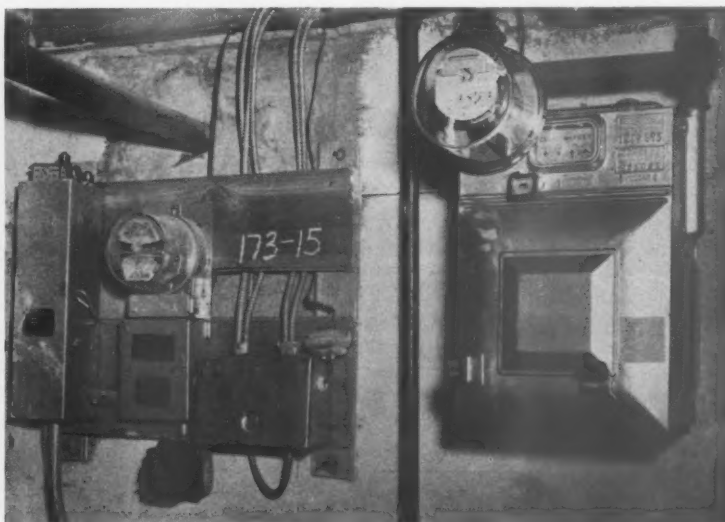
The problem was licked by adapting to the gas meter mechanism a standard demand register and a graphic demand meter normally used in connection with electric watt-hour meters. This called for the design and manufacture of special parts. Other parts, standard for electric meters, had to be modified. New parts and modified standard parts were produced by several manufacturers. When received, they were inspected by the Meter Bureau before assembly.

One vital part needed was obtained from war surplus material. This was a right-angle gear box originally designed for a bombsight. It was fitted into the design of the register mechanism so that, for about 11 months of the year, the gear box will be (Continued on page 63)

Reprinted from January 1950 issue of *Around The System*, employee magazine published by Consolidated Edison Co. of New York, Inc.

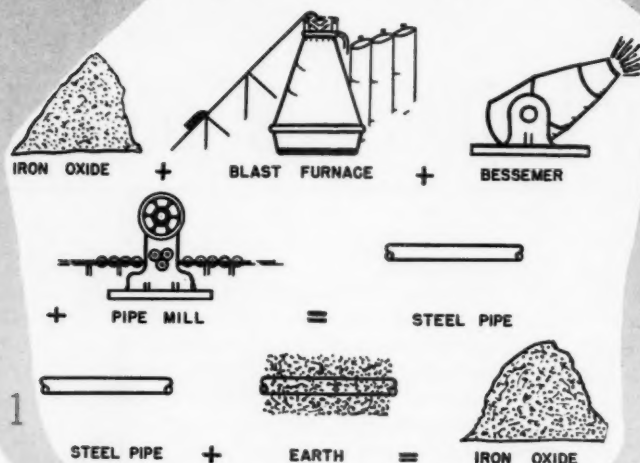


Graphic demand meter attached to residential gas meter makes record of gas use rate for each half-hour period



Cumulative demand register mounted on residential gas meter gives maximum rate of gas usage in any half hour over monthly period. Register receives current from regular house service

DUST to DUST



Corrosion and its causes

By N. P. PEIFER

*Chairman, A.G.A. Subcommittee
On Causes of Corrosion of
Underground Metals**

Companies utilizing metallic underground structures in the operation of their business have long recognized that money spent for maintenance caused by corrosion can mean the difference between successful and unsuccessful operation of their property. Water, oil or gas lines so corroded as to allow the material they contain to escape are a liability rather than an asset. Not only are the valuable contents lost, but the material may be such as to constitute a hazard when it does escape.

The annual cost of maintenance as a result of corrosion is often an appreciable percentage of the operating cost of the plant. Particularly is this true of those industries utilizing underground pipelines in their business. In many instances, proper understanding of the

general causes of corrosion would have made it possible for the operator to completely stop the corrosion, or at least to greatly reduce the effect.

Corrosion of the metal ordinarily used in the fabrication of underground structures, such as steel pipelines, is in effect a common law of nature (Figure 1). Energy was supplied during the refining of the original compounds, mostly oxides, which were the source of the metals used in the fabrication of the underground structure. When this refined metal is buried in the soil, it tends to surrender this energy and revert to its original condition.

Chemical compounds in the soil surrounding the buried structure assist in the formation of weak electric batteries, known as galvanic cells. These galvanic cells generate minute electric currents which act upon part of the surface of the buried metal to corrode it. Each galvanic cell has two metallic parts. One, known as the anode, is destroyed by the electric current generated in the cell. The other, known as the cathode, receives this electric current and is normally protected from corrosion. These two metallic parts of the galvanic or corrosion cell

may be almost any given distance apart. Sometimes they are so close together as to be immediately adjacent, while at other times, they may be separated by several hundred feet or more.

The soil or water surrounding the buried steel structure acts as the electrolyte for the galvanic, or corrosion, cell that is formed. The rate at which the corrosion progresses is dependent upon several factors, such as the conductivity of the electrolyte, the amount of oxygen present, and the chemical composition of the electrolyte (soil or water). The voltage generated by the metals forming the cell determines the amount of electric current that can be forced through the circuit from the anode to the cathode. This current, if permitted to flow, will remove ferrous metal at the rate of 20 pounds per ampere per year.

Figure 2 shows, in diagrammatic form, the action in and around a corrosion cell on the surface of an underground structure such as a pipeline. The small figures represent the flow of the electric current generated by the chemical action of the cell. As this current leaves the surface of the anode, it carries with it small particles of metal

*One of four subcommittees of the Corrosion Committee, A.G.A. Operating Section. Mr. Peifer is an engineer for The Manufacturers Light and Heat Co., Pittsburgh, Pennsylvania.

(ions). These ions immediately undergo a chemical change to form the rust, scale, or tubercles found on buried pipes.

Although the refined metals attempt to revert to their original state, the very act of reversion establishes barriers to restrict further reversion. If the film formed on the cathode portion of the cell, as a natural result of the initial corrosion, is not dissipated or carried away, the demand for current from the metal anode is greatly reduced; consequently, the corrosion is slowed. Under some conditions, the products of corrosion at the anode will so completely cover and seal it that the corrosion process is stopped. However, a new anode may be formed at some other point, starting the corrosion cycle again.

The formation of corrosion cells on the surface of a buried metal is not by chance but is dependent upon a dissimilarity. It may be a dissimilarity of metals, of metal surface, or of types of soils, but some dissimilarity must exist.

The types of soil along a pipeline often provide sufficient dissimilarity to cause corrosion cells to form. Figure 3

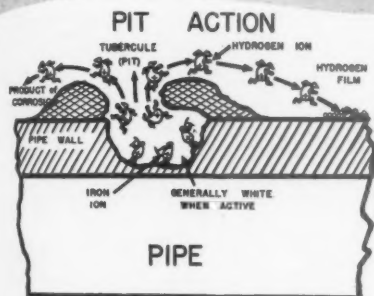
illustrates the condition at a location having two completely different types of soil structure. One section of the steel pipeline is laid through a sandy loam, while a short distance away the pipe is buried in a clay type of soil. Conditions of dissimilarity exist, and the metal in the anode area will corrode, while that in the cathode area will be protected. If the resistance to the current flow from the anode to the cathode is small, the rate of corrosion will be fast. Conversely, if the resistance to the current flow is great, the rate of corrosion will be slow. Many pipelines that have been in ground having poor conductivity for periods of more than 50 years have been examined and found to be in very good condition.

Differential aeration (Figure 4) of even the same type of soil can cause the corrosion of a buried pipeline. The bottom of the pipe may rest on the undisturbed section of the ditch. The soil on the bottom of the ditch is usually moist, and there is no appreciable oxygen (air) in the soil. The loose backfill, thrown on top of the pipe, may al-

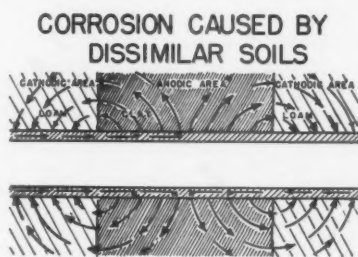
low ready access of air with its oxygen. Under these conditions, dissimilarity exists, and ordinarily, the pipe on the bottom of the ditch will be the anode or corrosion area. The rate of corrosion will depend upon a number of things, including the important condition of electrical conductivity of the electrolyte.

The galvanic, or corrosion, cell causing the corrosion of the pipeline may be created by a mixture of different soils (Figure 5). This condition exists where the ditch for the installation of the pipeline extends down through two or more soil strata. When the ditch is dug, the earth removed is thrown into a spoil bank at the side. During the course of digging and backfilling, all of the earth is further mixed. The contact of these dissimilar soils on the surface of the pipe provides the necessary condition for the formation of corrosion cells. If the backfill has been completely pulverized and thoroughly mixed, the action may produce a great number of small cells which tend to neutralize each other, resulting in a slow corrosion rate.

Normally, however, at least part of



2



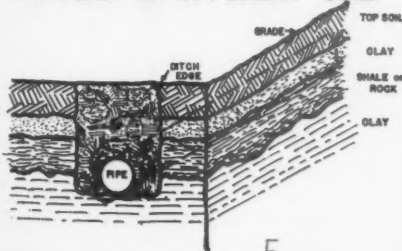
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CORROSION CAUSED BY DIFFERENTIAL AERATION OF SOIL



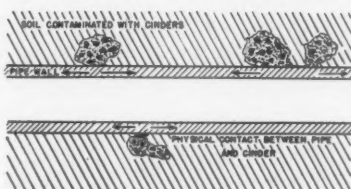
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CORROSION CAUSED BY MIXTURE OF DIFFERENT SOIL



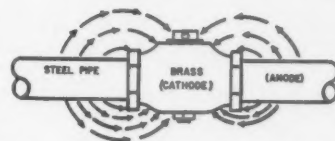
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CORROSION DUE TO CINDERS



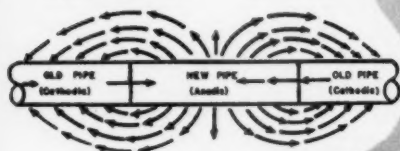
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CORROSION CAUSED BY DISSIMILAR METALS



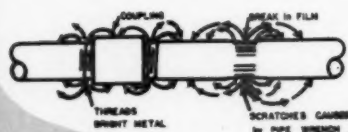
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CORROSION DUE TO DISSIMILAR METAL



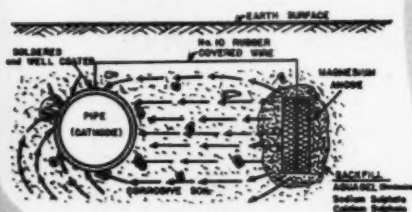
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CORROSION CAUSED by DISSIMILARITY of SURFACE CONDITIONS



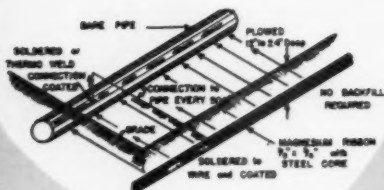
9

CATHODIC PROTECTION MAGNESIUM ANODE



10

MAGNESIUM RIBBON



11

the backfill will be composed of medium or even large lumps of soil. If any of these lumps fall in contact with the pipeline, they may form an active corrosion cell with its associated pit formation. Under some conditions, the pits resulting from these corrosion cells may act swiftly to penetrate the pipe wall.

Corrosion caused by cinders (Figure 6) is somewhat different from that caused by ordinary soils. Since cinders are the partially burned portion of bituminous coal they contain, among other materials, carbon, sulfur (in the form of sulfate) and metal oxides. When leached with water, cinders produce acid soil conditions from the compounds occurring in the cinder. When a steel pipe is laid in intimate contact with cinders, the dissimilarity is actually one of metals, the cinder acting as one metal, the cathode, and the pipe wall acting as the other, the anode. The acids leached out of the cinders contaminate the soil and increase its conductivity. Ordinarily, there will be no formation of film on the cathode since it acts as a non-polarizing electrode and the corrosion cell remains at a high level of activity, resulting in rapid corrosion.

Another corrosion cell is formed when two underground structures each fabricated from a different metal are connected together. A steel service line will form a galvanic cell as a result of its connection through the gas-fired hot water heater to a copper water service line. Due to the relative positions of steel and copper in the electromotive series of metals, the steel service line becomes the anode and will tend to be destroyed, while a film is formed on the copper water line, partially, or perhaps completely, protecting it. The factors most influencing the rate at which the steel service line will be destroyed are: first, the conductivity of the earth between the two structures; and second, the ability of the current from the anode to form a polarization film on the copper cathode. Corrosion of this type can be stopped by the installation of an insulated coupling separating the steel and copper lines.

A brass stop in a steel service line will also create a galvanic or corrosion cell (Figure 7). In this case again, the steel pipe is the anode and the brass stop is the cathode. Corrosion of the steel line will generally occur at a point nearest to the stop. Fortunately, because the area of the cathode (the brass stop)

is small with respect to the area of the anode, the corrosion is not ordinarily severe or rapid.

The ratio of the area of the cathode to the area of the anode is sometimes considered as a controlling factor in the rate of corrosion, all other conditions being equal. Generally if the cathode is small in area as compared to the anode, the corrosion rate of the anode will be slow. Conversely, if the area of the cathode is large as compared to the anode, the corrosion rate of the anode will be rapid.

Another type of galvanic or corrosion cell often found is that produced by the simple installation of a short section of new pipe in an old pipeline (Figure 8). In this instance, the new pipe always becomes the anode and, again, its rate of corrosion will largely depend upon the type and conductivity of the soil and the relative areas of the anode (new line) to the cathode (old line). If the amount of pipe installed has been a very short piece the corrosion can be greatly accelerated because this relatively small anode area will be forced to supply the current for the much larger cathode area of the old pipe.

One of the most widespread causes of corrosion is a modification of this last type of galvanic or corrosion cell, but in this case it involves only new pipe. The dissimilarity is one of state. In the last case, the products of corrosion along the old pipeline constituted one state, and the new pipe, the other. In this case there is only new pipe, but the difference in state is produced by the mill scale embedded in the surface of the pipe. The metal around the mill scale may become pitted and if the soil conditions are favorable (good conductivity), the metal wall of the pipe may be penetrated in as little as five years.

Still another common type of active corrosion cell is produced by a slight variation of this dissimilarity of surface condition (Figure 9). The scars or scratches made by the pipe wrench used to install a service line become active anode areas as soon as the line is buried. The same is true of the bright surface of the threads adjacent to a coupling or fitting along a service line. In both cases, the bright surface becomes the anode while the rest of the pipe surface is the cathode. With high conductivity soil, these cells can be most active and destructive for they represent the unfavorable condition (Continued on page 58)

Blueprint for greater sales

The 11.6 percent increase in industrial gas revenues and the 14.7 percent increase in commercial gas revenues during 1949 did not just happen. They were due in the main to aggressive promotion and selling by local gas companies. Credit for part of this success is due to the materials and helps made available by the Industrial and Commercial Gas Section.

Committee activities in the form of studies of gas industry problems produce the sales helps which have always been the spark plug for the gas engineer and the gas company representative on the firing line. The Section's committee set-up for 1950 augurs big things for the industry. Committee members have out-

lined realistic programs and activities to take advantage of the additional gas that will be available during the year. With the extension of present natural gas transmission lines and the construction of new lines, particularly to the Eastern Seaboard, the position of companies which formerly distributed manufactured gas and will now change to mixed gas or straight natural gas will be greatly improved.

While industry recognizes the advantages of gas fuel for the many and varied processes of production, gas still has to be sold. Other fuels are in competition and the sale of gas to industry must be pushed continuously, Section officials recognize, if the gas industry is

to expand its present position. Industrialists have long been aware of the advantages of gas fuel due to the continuous program of advertising by A. G. A., the manufacturers of industrial gas equipment, and through gas utilization articles appearing in the trade and technical publications. The same situation exists in the heavy duty commercial cooking field. In spite of continued flow of printed material it is still necessary to go out and make calls. Each prospect or customer whether he be in the industrial or commercial field has an individual problem and it is only through personal contact and a proposal to fit his exact needs that gas service can be sold. The growth of this phase of the gas industry



Section Managing Committees during '49 convention: (Left foreground) Roy E. Wright, Cambridge; (clockwise around table) Herman Gehrich, GAMA; Paul R. Dreyer, '50 chairman, Industrial Processing; L. E. Biemiller, '49 chairman, Programs and Papers; Hale A. Clark, Detroit; Charles C. Esles, '50 chairman, Industrial Gas Practices; C. G. Sageler, A. G. A.; D. W. Reeves, Section chairman; M. A. Combs, secretary; B. T. Franck, '49 chairman; C. H. Lekberg, Section vice-chairman; L. J. Fretwell, '49 chair-

man, Commercial Processing; Terry Hart, '50 chairman, Sales Training; L. Ourusoff, '50 chairman, Programs and Papers; H. E. G. Watson, Canadian Gas Association; A. M. Stock, GAMA; (background, l. to r.) Ralph L. Melany, '50 chairman, Metals; J. J. Bourke, A. G. A.; E. V. K. Schutt, '50 chairman, National Displays; James V. Hall, '49 chairman, Food Service Equipment; R. L. French, Natural Gas & Petroleum Association of Canada; T. J. Noonan, Cleveland; Charles G. Young, Springfield; H. O. Andrew

Counter appliance research series completed

a PAR activity

PUBLICATION of the fourth and final research report of a series

covering specialized commercial cooking appliances has been announced by American Gas Association Laboratories.

This report presents extensive information on methods of achieving maximum heat utilization in the design of gas griddles and combination griddles and broiler-griddles used in restaurants, lunch rooms and other commercial kitchens. It also analyzes and gives new and helpful data on such design and performance factors as heat application, venting,

aeration and use of automatic controls. The research was sponsored by A. G. A. Committee on Industrial and Commercial Gas Research as a PAR Plan activity.

The other reports in the series, which is titled, "Study of the Factors Affecting the Application of Gas to Counter Appliances," cover coffee urns, steam tables and dry food warmers. All four reports are available from the Laboratories at 75 cents each.

Lester T. Potter, Lone Star Gas Co., Dallas, Texas, is chairman of the sponsoring committee. Karl Emmerling, The East Ohio Gas Co., who retired from active business in December 1, was technical advisor for the project.

has been due to the aggressive and persistent selling programs of the gas companies together with the helps available from A. G. A.

Among committees which will make a major contribution to the promotion of gas sales to branches of industry offering the greatest potential gas load, is the Industrial Processing Committee, Paul R. Dryer, The Peoples Gas Light & Coke Co., Chicago, chairman. Through its Subcommittee On Textiles, the group will continue to emphasize to the gas industry that there is a large market for gas and gas equipment for the many phases of textile finishing.

Other important studies by this committee include: an investigation on the problems of natural gas changeovers as they affect open flame operations where the flame is in contact with the work; promoting improvement of food processing equipment using gas, and the promotion of gas to food processors; investigation of the possibility of producing material to promote the replacement of batch type ovens with continuous gas-fired automatically controlled ovens.

A Committee on Industrial Gas Practices, Charles C. Eeles, The Ohio Fuel Gas Co., Toledo, chairman, has been organized this year for the purpose of investigating practices in the utilization of gas for industrial and commercial operations. Objectives of this committee's work include informing member gas companies and their industrial men concerning the provisions of national codes controlling or affecting the installation and operation of gas in industrial and commercial establishments. In addition to national codes, the committee will make a comparative study of local codes covering the installation and use of gas

and gas equipment for the purpose of encouraging greater uniformity. Assistance of local gas men in this work will be solicited by A. G. A.

The committee intends to define proper industrial gas practices for the guidance of member companies.

The Metals Committee, Ralph L. Melaney, Equitable Gas Co., Pittsburgh, chairman, has some interesting and important projects for 1950. The use of Information Letters will be continued to report results of committee investigations. The first letter to be sent out this year will be on galvanizing, and will include a description of different methods of heating galvanizing pots and give fuel performance records.

An investigation will be made to determine whether further research is desirable following the report on Project IGR-55, "Development Testing of Small High Temperature Gas Glow Tubes." The investigation will search for facts which would warrant further research on these tubes for use in immersion or radiant high temperature heating. Induction melting vs. gas melting for ferrous and nonferrous metals is another subject to be investigated. Results of this work may have considerable bearing on future methods of firing crucibles by gas with a view towards improving efficiencies and uniformity. High speed forging will be the subject for another Information Letter which should be of interest to industrial gas engineers in highly industrialized communities. Several papers on this topic have been presented at various times and this letter will serve to bring them all together in one convenient "package."

Although the gas industry has captured all but a small part of the com-

mercial cooking load in hotels and restaurants, competition is keen for this business. Competitive promotion, unless aggressively counteracted, can cut into the gas load to an alarming extent. With this situation in mind, Section committees having to do with large volume cooking operations, have outlined programs to hold the industry's dominant position in this market.

The 1950 National Sales Campaign on Commercial Gas Cooking will be the major activity on the program of the Food Service Equipment Committee, E. V. Fineran, Washington Gas Light Co., Washington, D. C., chairman. The fruits of several years of activity by the Joint Committee on Dealer Cooperation, A. G. A., GAMA, FSEI, Inc., will materialize during this National Sales Campaign on Commercial Cooking. Dealers in this period of stepped-up sales effort will profit along with the gas industry. The Food Service Equipment Committee will also continue to guide the Gas Industry Chain Contact Program which was started so successfully last year.

Of major importance to everyone interested in the large volume cooking field will be projects of the Equipment Improvement Committee, Walter S. Anderson, Boston Consolidated Gas Co., chairman. A forward step was taken by this committee in approving the classification of the recommendations for improvements of commercial gas cooking and baking equipment made by the technical advisory members of the committee. It has taken considerable time for this committee to develop recommendations for appliance improvement that would be accepted for strengthening approval requirements. Practical improvements have been recommended that will serve a definite purpose without materially increasing production costs. Suggestions for improvement fall under the headings of: Ease of Servicing; Exterior Finish That Provides for Easy Cleaning; Suitable Levelers Accessible from Front of Equipment; Counter Balances instead of Springs Wherever Practicable, and others.

The Programs and Papers Committee is responsible for arranging conference and convention meetings of the Section. It has prepared an outstanding program for the Spring Sales Conference to be held in St. Louis, April 4-6, 1950. Chairman Leon Oursuff, Washington Gas Light Co., and his committee have brought a wealth of experience to this problem, and the program as outlined

promises to be one of the most comprehensive of any conference held so far.

There are other committees in the Section organization some of which are set up for specific purposes and meet only when their sphere of action requires consideration. One of these groups is the Committee on National Displays whose deliberations result in A. G. A. combined exhibits at such expositions as the Hotel Show, Restaurant Show, and Metal Show. Chairman Everett V. K. Schutt, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., recently called a meeting of the committee to set up the National Restaurant Exposition to be held in Chicago, May 23-26, 1950. Space for the cooperating exhibitors was allocated and the over-all motif approved for a tie-in display which will occupy the full width of the Navy Pier. A subsequent meeting will be held to take action on the two shows which will be held later in the year.

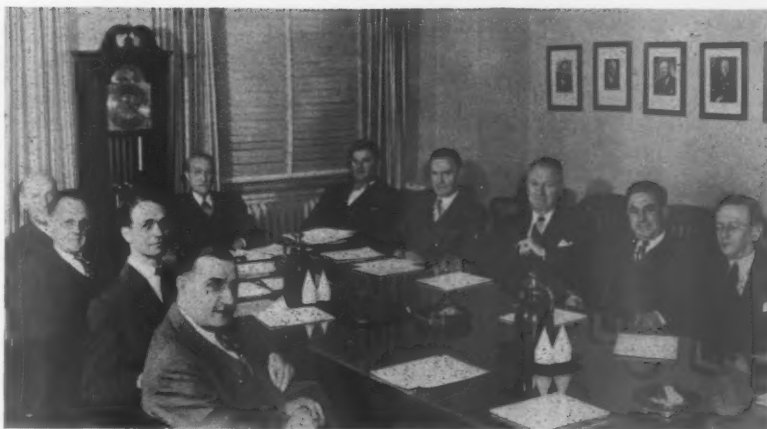
The sum total of committee deliberations provides a background of information on nearly every phase of industrial and commercial gas operations. Gas company representatives, comprising most of the membership of the Section's committees, are kept abreast of industry problems as they develop. They help to solve those problems and then pass on information to other Section members.

LP-gas sales

(Continued from page 42)

(truck tanks) and portable tank containers (skid tanks). Likewise, during the year The National Fire Protection Association issued a new set of standards for the design, installation and construction of containers and pertinent equipment for the storage and handling of liquefied petroleum gases at utility gas plants. This was issued by The National Board of Fire Underwriters as their NBFU Pamphlet 59. Likewise, The National Fire Protection Association revised their standards for the design, installation and construction of containers and pertinent equipment for the storage and handling of liquefied petroleum gases. This was issued as NBFU Pamphlet 58, dated March 1949.

The quantity of liquefied petroleum gas now being marketed classifies this industry as one of the major fuel suppliers in the country. Known reserves and presently available but unrecovered volumes of LP-gas indicate adequate quantities for increasing future demands.



Industrial Processing Committee meeting at A. G. A. headquarters: (Clockwise around table) J. H. Mikula, Milwaukee; R. C. LeMay, Philadelphia; R. H. Minton, Jr., Newark, N. J.; M. A. Combs, A. G. A.; Paul R. Dreyer, Chicago, chairman; E. G. Silven, Providence, R. I.; G. P. McCabe, Brooklyn; G. R. Van Kempen, New York; E. V. K. Schutt, Newburgh, N. Y.; L. R. Foote, New York



Toledo session of Committee on Industrial Gas Practices: (Seated, left to right) A. D. Frydendall, Chicago; Charles C. Eeles, Toledo, chairman; M. A. Combs, A. G. A.; (standing, left to right) Vance Uhlmeier, Moline, Ill.; Andrew J. Huston, Worcester, Mass.; R. L. Manier, Syracuse, N. Y.; D. A. Campbell, Cleveland; Paul W. Craig, Pittsburgh, and J. V. Kniveton, Philadelphia, Pennsylvania



New York meeting of Section's Equipment Improvement Committee: (Clockwise around table) C. L. Benn, Pittsburgh; L. E. Wagner, Providence, R. I.; R. D. McNeice, Newark, N. J.; M. A. Combs, A. G. A.; W. K. Yates, Philadelphia; W. S. Anderson, Boston, chairman; R. G. Juergens, Cleveland; E. L. Hall, Frank Hodgdon, A. G. A.; E. J. Nelson, Rochester; A. E. Stack, Washington, D. C.

Industry news

U. S. Steel pays radio tribute to natural gas

AN impressive testimonial to the nation's natural gas industry was broadcast to millions of radio listeners on Sunday, January 8, 1950, by U. S. Steel Corporation. The following quotation is from U. S. Steel's Sunday evening program, "The Theatre Guild on the air."

"How many homes in America do you estimate are heated with natural gas? One million, five million, ten million? Well, the

answer is 12 million. Yes, 12 million American homes are served by a network of natural gas pipelines that totals some 251,000 miles in length—and that's 25,000 miles longer than the total load mileage of all our nation's railroads. This underground network of huge steel tubes provides both homes and industries in scores and scores of communities with their main fuel.

"A few more figures will give you some idea of the way natural gas consumption has increased in the last quarter century. It doubled between 1923 and 1935 and doubled again between 1935 and 1945—and will be doubled a third time in the decade ahead. Not only is natural gas a vitally important source of heat but it is also the breath of life for many industries including glass, ceramics and cement. And as a raw material, natural gas is one of our most important sources for chemicals needed in making drugs, synthetic rubber, paint solvents, anti-freezes and alcohol.

"Both the efficiency of today's natural gas distribution system and the engineering triumph of laying these huge steel pipes across mountains, rivers, swamps, plains and hills are worthy of the nation's acclaim. But somehow my personal Oscar goes to the men who keep the gas moving through the pipelines—

the maintenance workers and the dispatchers. "At this time of the year, for example, when Old Man Winter really begins to bear down, the consumption of natural gas increases tremendously. When a crisis develops in especially cold areas the dispatcher's job goes on a 24-hour basis. He and his helpers move cots, food and coffee into the office. Teletypes click steadily, phones ring constantly—while these men make sure gas gets where it's needed most. Gas which had been stored in tanks under great pressure and in natural reservoirs, provided by worked out gas wells are tapped and brought into the system.

"United States Steel Corporation is proud of the part it has been able to play in the development of this system. U. S. Steel subsidiaries have produced much of the steel pipe in use today carrying countless billion cubic feet of gas from Texas to both coasts and as far North as Canada.

"Natural gas as a source of heat as well as power is one of the developments that makes life healthier, simpler and more pleasant for millions of us. No wonder helping the natural gas industry do a better job is considered such an important responsibility by the industrial family that serves the nation—United States Steel."

A. G. A. prepares survey of residential gas service

PUBLICATION of a "Survey of Residential Gas Service" by counties throughout the United States is scheduled by the Statistical Bureau, American Gas Association, for early this month. The study is the first of its kind since a survey on a community basis was published by the Association in 1932.

The new work provides valuable data for developing market analyses, sales potentials and for pointing out the most promising areas for expanded merchandising efforts. The volume shows the number of residential gas customers, as of October 1, 1949, in each

county of the United States, together with the name of the supplying utility.

In addition to the basic customer data, information is shown concerning the physical characteristics (specific gravity, heat content, delivery pressure) of the gas distributed in each county. Recent county population estimates are also shown wherever such statistics were obtainable from official state agencies. The county tabulations also list available gas appliance saturation estimates for water heaters, refrigerators and house heating units (central and space combined).

Supplementing this comprehensive tabular presentation are county outline maps for

each state, depicting pictorially the type of gas available in each county and identifying the local distributing utilities.

Every effort has been made to include all existing companies, from local distributors with one or more natural gas wells to the largest utility distribution system. The 190-page volume represents the most complete survey of its type ever made available. Copies may be obtained, as long as the supply lasts, from the Bureau of Statistics, American Gas Association, 420 Lexington Avenue, New York 17, N. Y., at a charge of \$2.50 per copy for non-members and \$1.50 per copy for members of the Association.

Supreme Court rules in East Ohio case

ANATURAL GAS DISTRIBUTOR operating wholly within one state is nevertheless subject to federal regulation, according to a significant ruling handed down last month by United States Supreme Court.

The five-to-two decision settled a ten-year controversy between The East Ohio Gas Co., Cleveland, and Federal Power Commission.

Justice Hugo L. Black wrote the majority opinion. Justices Robert H. Jackson and Felix Frankfurter dissented. Justices William O. Douglas and Harold H. Burton did not participate.

"We find no language in the Act indicating that Congress meant to create an exception for every company transporting interstate gas in only one State," the opinion said.

"Regardless of whether it might have been wiser and more farseeing statesmanship for Congress to have made such an exception, we should not do so through the interpretive process. There is nothing in the legis-

lative history which authorizes us to interpret away the plain Congressional mandate."

FPC had argued before the court that if it couldn't regulate such companies as East Ohio, there would be "substantial gaps" in the enforcement of the 1938 Natural Gas Act.

The company had contended that all of its business is fully subject to regulation by the state and had relied on statements by the Court that Congress intended not to cut down state regulatory power, but rather to supplement it by closing "the gap created by the prior decisions."

The commission determined on June 25, 1946 that East Ohio's 650-mile pipeline transportation system should be under federal regulation. It said the company participated in a continuous flow of gas is interstate commerce. Therefore, the company was ordered to supply FPC with various statistics and reports.

East Ohio buys 85 percent of its gas at the state border from Hope Natural Gas Com-

pany and Panhandle Eastern Pipeline Co., interstate distributors.

East Ohio had argued that the word "transportation" should be construed as applying only to companies engaged in the business of transporting gas in interstate commerce for hire or for sales to be followed by resales, and that the company does neither. It was also argued that East Ohio is exempt from the Natural Gas Act because all its facilities come within the proviso which makes the Act inapplicable "to the local distribution of natural gas or to the facilities used for such distribution." Utility representatives also had contended that compliance with the Commission's accounting and report orders would impose a burden so great "as to make such orders transgress statutory and constitutional limits."

The decision raised the possibility that FPC would examine the activities of other companies with the idea of bringing them under federal regulation.

GAMA to hold 1950 exhibit in Atlantic City

GAS Appliance Manufacturers Association has announced that it will hold its customary biennial exposition of gas appliances and equipment at the Atlantic City Convention Hall, October 2-6, 1950.

The exposition will be held in connection with the regular annual convention of American Gas Association in Atlantic City.

According to Harold Massey, assistant managing director of GAMA, the 1950

show will surpass that of the 1948 exhibition both in space reserved and in number of exhibitors. A prospectus giving complete information on the exhibition will be mailed to prospective exhibitors.

Contest to promote gas incineration ideas

SALES, promotional, advertising and display ideas for promoting modern gas incineration in the residential gas field are the goal of a lucrative new contest sponsored by eight equipment manufacturers and announced by the Association's Residential Gas Section. Five cash prizes are offered, ranging from \$200 to \$500.

Running from January 23, 1950 through February 28, 1950, the contest is open to executives or employees of member utility companies and also to all individual members of the Association. Officers or employees of the gas incinerator manufacturers or their advertising agencies are not eligible.

The competition is expected to assist materially in promoting modern gas incineration

as a means of building new loads and new prestige for modern gas service. Contestants are asked to submit ideas which can consist of, but are not limited to: (1) an essay of not less than 100 nor more than 300 words on the theme, "Why Gas Utility Companies Should Promote the Sale of Modern Gas Incineration;" (2) an outline of a gas incineration sales or promotional program; (3) a suggested advertisement on gas incineration; (4) a suggested gas incineration sales presentation for use by salesmen; (5) a suggested gas incineration display; (6) any other ideas which can be used to promote and sell gas incineration.

All entries should be addressed to Ira J. Rapson, chairman, A. G. A. Gas Incineration

Committee, American Gas Association, 420 Lexington Ave., New York 17, N. Y., and should be received or postmarked not later than midnight of February 28, 1950. Each contestant may submit as many entries as desired. The jury of awards will consist of members of the A. G. A. Gas Incineration Committee.

Sponsors of the contest are as follows: American Incinerator Corp., Detroit; Autogas Co., Chicago; Bowser, Inc., Incineration Division, Cairo, Ill.; Brule Incinerator Corp., Chicago; Calcinator Div., Valley Welding & Boiler Co., Bay City, Mich.; General Engineering Co., Bay City, Mich.; Incinerator Products Co., Detroit, and Electrocap Mold Co., Pittsburgh.

Servel annual report wins industry award

SERVEL, INC., Evansville, Ind., has been awarded a coveted bronze "Oscar of Industry" trophy for the best 1948 annual report among leading household equipment manufacturers.

Each year "Financial World," investment

and business weekly, presents the "Oscar" awards for the best annual reports in every phase of industry, including organizations in United States, Canada and Latin America.

Servel, makers of the Gas Refrigerator, Gas Hot Water Heater, and Gas Air Con-

ditioning unit, was chosen to receive the "Oscar" by an independent board of judges.

Dr. William R. Hainsworth, vice-president, accepted the award as the company's representative at the annual report awards banquet in New York City.

Research group visits Cambridge plant

a PAR activity

MEMBERS of the Association's Gas Production Research Committee viewed the two new Hall high Btu oil gas sets recently installed by Cambridge Gas Light Co., Cambridge, Mass., during a special visit to the company's plant on December 17, 1949.

The sets, one a conventional four-shell and the other an inverted "U" type (the initial installation) and auxiliary apparatus, were installed by The Gas Machinery Co., Cleveland, Ohio. After the set inspection, the combustion appearance and operation of 1,000 Btu oil gas was demonstrated to the committee at the company's utilization laboratories.

The accompanying photograph shows A. G. A. committee members during their visit to Cambridge: (Back row, left to right) D. S. Reynolds, The Gas Machinery Co., Cleveland; R. J. Horn, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.; W. S. Harvey, Public Service Electric & Gas Co., Newark, N. J.; E. S. Pettyjohn, representing Illinois Institute of Gas Technology, Chicago, Ill.; R. E. Kruger, Rochester Gas & Electric Corp., Rochester, N. Y.; C. R. Breck, Southern Natural Gas Corp., New York, N. Y.; K. W. Stookey, The Gas Ma-

chinery Co.; H. E. Ferguson, The Peoples Gas Light & Coke Co., Chicago.

Shown in the middle row are: (left to right) G. G. Howie, L. Bresnahan, M. W. Ryder, all of Cambridge Gas Light Co.; J. F. Bell, Portland Gas & Coke Co., Portland, Ore.; T. L. Robey, A. G. A.; F. J. Pfluke, Rochester Gas & Electric Corp., Rochester,

N. Y.; H. M. Henry, NEGEA Service Corp., Cambridge, Mass.; W. Lavery and E. E. Richardson of Cambridge Gas Light Company.

Seated are: E. G. Boyer (left), Philadelphia Electric Co., Philadelphia, Pa., and P. T. Dashiell, United Engineers & Constructors, Inc., Philadelphia.



Members of A.G.A. Gas Production Research Committee visiting Cambridge Gas Light Company plant

Cyclic catalytic reforming process tested

DETAILS of an important new process for cyclic catalytic reforming of natural gas were described in Boston last month by C. A. Schlegel, United Engineers & Constructors, Inc. The development is an outgrowth of work undertaken by Gas Production Research Committee, American Gas Association, as a PAR Plan activity.

Addressing the operators' section, New

England Gas Association, Mr. Schlegel explained that the process was developed by United Engineers & Constructors, Inc., in collaboration with The United Gas Improvement Co., Philadelphia. He described impressive results of a three-week test operation at Station "A" plant of the Philadelphia Gas Works.

In one instance, the author said, a saving

was obtained of four cents over fuel bed reforming and considerably less than carburetted water gas operation. Set conversion costs are in the neighborhood of \$15 to \$20 per Mcf daily capacity of installed, enriched reformed natural gas. New construction figures are about the same, he added, but should be compensated for by greater capacity.

The process, as tested in Philadelphia, uses an 11-foot OD carburetted water gas machine and was modified to use the superheater only. This single shell contains a combustion chamber at the bottom where the process natural gas mixture and the heating natural gas mixture are introduced and pass upward, first, through a preheat bed and then through a catalyst bed.

Reformed gas passes out of the set through a washbox and cold enrichment takes place at a convenient point beyond. The blast gases pass through a waste heat boiler and, when the connections are provided, the make gases will also pass through the boiler. Existing facilities for automatic control of the unit and for supply of hydraulic pressure, steam, air and natural gas were used. Operating results showed the following production of gas per set per day.

	Medium inert	High inert	Closed stack
Reformed gas	7,800	9,200	9,600
Sendout gas (enriched with natural gas)	11,900	15,500	16,100
Sp. gr. sendout gas	.61	.67	.68

Using the carburetor shell as the heating chamber, it is estimated that the above figures can be increased by approximately 45 percent.

Nashville cartoon aids public relations



When Nashville Gas and Heating Company had to run a new medium pressure gas main almost the length of a downtown street in Nashville, Tenn., "Sonny Sunbeam" told the public the reason for the excavation. The company plans to use "Sonny" in model home presentations and other ways

Associations back water heater drive



H. Carl Wolf (left), A.G.A. managing director, and H. Leigh Whitelaw, GAMA managing director, expressing enthusiasm for the new 1950 Court of Flame automatic gas water heater campaign which will extend from March 1 through September 30, 1950. Engineers' garb symbolizes the "all-aboard" theme which will be used in the drive. The campaign is sponsored by the gas water heater division of GAMA in cooperation with A.G.A. which will tie-in with national advertising and promotion

New dealer publication

INCREASED PROMOTION of gas appliance sales is the target of a new publication, The Dealers Gasette, sponsored by the dealer promotion department, The Ohio Fuel Gas Co., Columbus, Ohio. J. G. Berwanger is dealer promotion manager.

Purpose of the publication, which first appeared in January 1950, is to bring the company's dealers "by word and picture, events, displays, and news about other dealers, distributors, and manufacturers of gas appliances." The Dealers Gasette is edited by W. F. Smiley, The Ohio Fuel Gas Co., who is a member this year of American Gas Association's Publicity and Advertising Committee.

1949 PCGA Proceedings

PUBLICATION of Volume 40, Pacific Coast Gas Association Proceedings, covering activities during 1949 has been announced by Clifford Johnstone, managing director of the association. Included is a broad array of papers presented during the year at accounting, manufacturers, technical, sales and advertising meetings, as well as featured addresses from the fifty-sixth annual meeting at Santa Barbara.

A. G. A. Mid-West Conference to push sales

RECOGNIZING that a vital sales year is ahead, a program of topflight speakers on domestic gas sales and promotion, public relations and economics has been organized for the Association's Mid-West Regional Gas Sales Conference next month.

Each year hundreds of gas company executives and gas appliance manufacturer representatives use the Mid-West conference as a sounding board and informal seminar on domestic gas sales activities. One of the largest and most impressive events on the promotional calendar, the conference will be staged this year at the Edgewater Beach Hotel in Chicago from March 27 through March 29.

The 1950 Mid-West Regional Gas Sales Council is headed by R. J. Vandagriff, The Laclede Gas Light Co., St. Louis, Mo., as chairman, and J. E. Walsh, Metropolitan Utilities District of Omaha, Omaha, Nebr., vice-chairman. H. D. Valentine, The Peoples Gas Light and Coke Co., Chicago, is chairman of the conference program committee.

In the opening conference address a stimulating message will be provided by James F. Oates, Jr., chairman of the board, The Peoples Gas Light and Coke Company. The same day, special greetings will be presented by Russell M. Perkins, manager, Windsor Gas Co., Ltd., Windsor, Ontario, who will head a large

Canadian delegation.

Steps that should be taken to assure the domestic cooking load for gas will be outlined by a manufacturing executive of wide experience, Julius Klein, vice-president, Caloric Stove Corp., Philadelphia. Harold W. Springborn, managing editor, Gas Age magazine, in a talk entitled "Who's Kidding Whom?" will discuss vital aspects of dealer cooperation. He is expected to call for a stronger sales approach and greater confidence in the gas industry's products and services. W. Paul Jones, president, Servel, Inc., Evansville, Ind., will disclose ambitious plans for promotion of the modern new gas refrigerator.

Under the intriguing title "Your Personality Is Showing, Sir!" Dr. Sylvia Sorkin, professor of marketing at Washington University, will present interesting facts from the women's angle. Ways that home service departments can implement gas sales efforts will be blueprinted by the new chairman of the A. G. A. Home Service Committee, Irene L. Muntz, Rochester Gas & Electric Corporation.

With the initiation this year of a long-range planning program for residential gas activities, there is even more need than before for a thorough understanding of the industry's PAR Plan. Frank C. Smith, president, Houston Natural Gas Corp., and chairman,



R. J. Vandagriff



J. E. Walsh

A. G. A. General Promotional Planning Committee, will give the sales executives a comprehensive picture of PAR accomplishments and objectives.

Another guest speaker, A. von Wening, executive vice-president, A. O. Smith Corp., Milwaukee, Wisc., will analyze the gas water heating market, providing pointers for industrywide promotions in this field.

Dramatic presentations are promised by two speakers from outside the gas industry—Dr. J. L. Rosenstein, associate professor at Loyola University, and Dr. Preston Bradley. Dr. Rosenstein, a leading business psychologist, will tell what most executives overlook. Dr. Bradley, world famous preacher, philosopher, lecturer and orator, will bring the conference to a close with a stimulating message.

Oak Ridge seeking natural gas system

THE COMMUNITY of Oak Ridge, Tenn., is seeking proposals for the distribution of natural gas to its population of approximately 30,000 residents.

Located on a government reservation, the town is unincorporated at present and under the sovereignty of the State of Tennessee. With few exceptions, all houses and other

structures are owned by the government. However, plans call for eventual incorporation of the town and sale of houses and commercial buildings to private owners.

Invitations and detailed information regarding proposals for construction and operation of a natural gas utility system were made available to prospective bidders on

January 23, 1950. Natural gas is now being delivered to the Oak Ridge plant under contract with East Tennessee Gas Company which obtains its supply from Tennessee Gas Transmission Company.

For details contact R. W. Cook, manager, Oak Ridge Operations, United States Atomic Energy Commission, Oak Ridge, Tennessee.

Heat pump called "energy mining mechanism"

THE RELATIONSHIP of the availability of energy to its unit cost sets the heat pump in its logical place as an energy mining mechanism. This is one of several dramatic facts pointed out in an article entitled "The Heat Pump: Something for Nothing?" which appears in the December 1949 issue of Heating and Ventilating magazine. Following are excerpts from this article by F. W. Hutchinson, professor of mechanical engineering, University of California.

"... the extensive popular interest which has been shown in the heat pump during recent years is due in part to a widespread but mistaken belief that it permits the use of 'free' energy in place of the fuel used in ordinary systems. Undoubt-

edly this fallacy arises from the very human desire to 'get something for nothing' and, as is always true in such cases, it leads inevitably to disappointment.

"The energy which flows through a heat pump is in fact free, but it is free because of the fact that in its existing state it is completely unavailable and hence entirely useless. The heat pump extracts this useless energy and reconditions it to a higher temperature level at which it may be effectively utilized, but the cost of extraction and of reconditioning is as directly chargeable to the energy as is the cost of mining and transportation chargeable to the man who purchases a conventional fuel.

"The second popular misconception con-

cerning heat pumps is that they are heating systems rather than—as is the true case—units which merely replace the furnace of a conventional heating system. A heat pump, like a fuel-burning furnace, releases energy which must then be transported to its place of use, released within the space to be heated, and distributed through that space in such a way that the occupants will realize uniform heating effect.

"Thus a heat pump takes the place of only one of the four parts of a conventional heating system; in order for its use to be effective it must be integrated with the three other parts to constitute a complete system."

International Gas Conference report reprinted

A LIMITED NUMBER of copies of the statistical report entitled "Statistics of the European Gas Industry" ("Les Statistiques Européennes de l'Industrie du Gaz"), presented to the Fourth International Gas Conference in June 1949 by the Association des

Gaziers Belges, are now available.

The report contains a wealth of tabulated statistical information, up to and including 1947, with maps, graphs and explanatory text, covering Austria, Belgium, Czechoslovakia, Denmark, Finland, France, Germany,

Great Britain, Holland Hungary, Italy, Norway, Poland, Spain, Sweden and Switzerland.

Copies are obtainable (price 15s. Od. each, post free), from the Secretary, The Institution of Gas Engineers, 1 Grosvenor Place, London, S.W.1.

Transcontinental line to be completed in '50

THIS YEAR will see completion of the 1,840-mile Transcontinental gas pipeline from the Rio Grande Valley to New York City and the first large-scale delivery of natural gas to Manhattan, Brooklyn and Long Island, according to Claude A. Williams, president of Transcontinental Gas Pipe Line Corporation. Initial delivery of gas through the new line into New York City is now scheduled around November 1.

Distribution of the gas delivered by Transcontinental will be through existing privately owned utilities in the Philadelphia-New Jer-

sey-Metropolitan New York region. These include Consolidated Edison Co. of New York, Inc., The Brooklyn Union Gas Co., Kings County Lighting Co., Brooklyn Borough Gas Co., Long Island Lighting Co., Public Service Electric & Gas Co., Elizabethtown Consolidated Gas Co., South Jersey Gas Company and, the Philadelphia Electric Company.

Transcontinental now has pending before Federal Power Commission an application seeking an increase in the line's authorized

capacity from 340 million to 505 million cubic feet daily.

Natural gas supply for the company, which will serve Philadelphia, Newark and other New Jersey communities in addition to New York City, will be furnished by producers in more than 30 major oil and gas fields along the Texas-Louisiana Gulf Coast under 20-year contracts. This area contains the greatest presently known gas reserve in the world. It is a region where gas reserves have consistently increased despite constantly expanding use.

Gas Abstracts enters sixth year

WITH the January 1950 issue, Gas Abstracts has entered its sixth year of providing comprehensive digests of the current literature bearing on gas industry problems and developments. Prepared by Institute of Gas Technology, Technology Center, Chicago, Gas Abstracts is the only publication

of its kind serving the gas industry today.

Contents of the publication are compiled from more than 80 journals which are surveyed each month. Author and subject indexes are prepared annually and binders are supplied to preserve each volume for permanent reference. Gas Abstracts is supplied to

the Institute's associate member companies and contributors without charge and is available to others at a \$15 annual subscription fee.

The author and subject indexes to Volume 5, 1949, are nearing completion and will be distributed shortly. A limited number of copies of Volume 5 are still available.

Laclede Gas proves business citizenship

ADVANTAGES of a realistic public relations approach were illustrated recently by the case of The Laclede Gas Light Co., St. Louis, Missouri.

Following an explosion in the field house in a city park, Laclede promptly an-

nounced that according to available evidence a particular valve should have been installed to regulate gas pressure. In addition, the company retained a professor of engineering from Washington University to investigate the causes of the accident and to offer means

of avoiding new mishaps.

The newspapers have editorialized on this farsighted corporate attitude and pastors in local churches have praised it as an evidence of business citizenship and corporate integrity.

GAMA inaugurates Washington reports

A NEW SERVICE has been started by Gas Appliance Manufacturers Association to provide members with accurate, up-to-the-minute information on Washington events that affect their businesses.

First of this series of Washington reports, prepared by James R. Lee, GAMA's

newly appointed Washington representative, deals with "Housing Facts and Prospects." The development of various housing programs with government assistance is considered of prime importance to manufacturers.

As the first issue of the report reveals, "there are several major housing programs

which will gain momentum in 1950, producing considerable new business for those companies which have pertinent information on when, where and how in the housing field." Also included are lists of real estate value, unobtainable through ordinary channels or from other established sources.

Causes of corrosion

(Continued from page 50)

of a small anode area and a large cathode area.

The ability of dissimilar metals to form galvanic cells has been utilized by the corrosion engineer to protect the underground structure in which he is interested (Figures 10 and 11). Such protection is accomplished by burying in the earth alongside the underground structure a metal that is higher in the electromotive series than the structure that is to be protected. This metal is sometimes called an expendable anode. It is used to form a galvanic cell in which it will be destroyed, and the structure to which it is electrically connected will be protected by the flow of current to its surface. Metals most commonly

used for this purpose are zinc, aluminum, and magnesium. These metals are desirable because their ampere hour capacity is high, and the electromotive force produced when they are connected to steel or iron is sufficient to overcome the currents generated by the corrosion cells naturally occurring on the buried structure.

Underground structures should, of course, be designed to have the least possible dissimilarity. Dissimilar metals should not be used unless absolutely necessary because of structural requirements. If dissimilar metals must be used, then every effort should be made to separate them by an insulated coupling. Dissimilarity of metal surface conditions should be avoided whenever possible and when it does occur, the natural

anode area should be afforded some type of protection. Many dissimilarities are not susceptible to control, and it is essential that these areas should be recognized so that corrosion can be prevented by the use of expendable metals or other suitable means of protection.

FPC elects Wallgren

COMMISSIONER Mon C. Wallgren has been unanimously elected vice-chairman, Federal Power Commission, to serve during the calendar year 1950. He succeeds Commissioner Claude L. Draper who served in 1949.

Commissioner Wallgren has been a member of the Commission since November 2. Prior to that he was governor of the State of Washington and served as U. S. Senator and Representative from that state.

Under provisions of the Federal Power Act, the Commission each year selects one of its members to serve as vice-chairman.

Domestic research groups streamlined

a PAR activity

THREE TECHNICAL ADVISORY GROUPS of the Association's Committee on Domestic Gas Research have been consolidated, effective February 1, 1950, in a move to broaden consideration of research problems in gas house heating and air conditioning. Announced by R. J. Rutherford, Worcester (Mass.) Gas Light Co., committee chairman, the move affects the central space heating, direct space heating and summer air conditioning groups. Consolidation of these technical advisory groups of leading engineers from gas utilities and companies outside the industry will greatly increase the number of approaches to research problems in the gas house heating and air conditioning field.

Active research projects that will be supervised by the new Technical Advisory Group for Space Heating and Air Conditioning Research during 1950 are: Improvements in Air Distribution Systems for All-Year Air Conditioning; A Study of Heat Transfer in Gas Furnaces; Study of Performance Characteristics of Gas Boilers Equipped for Hot Water and Space Heating Service; Research in Corrosion, Oxidation and Deterioration of Metals Under the Influence of Products of Combustion of Gaseous Fuels; Investigation of Factors that Contribute to Maximum Comfort Conditions in Houses Heated with Gas; Investigation of Draft Control Methods and Equipment; and Aeration of Furnace Rooms.

Members of the three groups will continue

to serve through the year on the consolidated group of which Dr. F. E. Vandaveer, director of laboratories, The East Ohio Gas Co., has been appointed chairman.

Other technical advisory groups of the Committee on Domestic Gas Research are: cooking—James A. Nelson, Cribben & Sexton Co., Chicago, Ill., chairman; general utilization—Dr. William R. Hainsworth, Servel, Inc., New York, N. Y., chairman, and water heating—John W. Farren, Ruud Manufacturing Co., Kalamazoo, Mich., chairman.



Dr. F. E. Vandaveer

Peck heads Pennsylvania natural gas group

IRVING K. PECK, vice president and general manager, The Manufacturers Light and Heat Company and affiliated Pittsburgh Group gas companies of The Columbia Gas System, Inc., has been elected president, Pennsylvania Natural Gas Men's Association. Mr. Peck was elected at the annual meeting in Pittsburgh on January 19.

J. J. Jacob, Jr., vice-president, The Peoples Natural Gas Co., Pittsburgh, was elected vice-president of the association; P. L. Kesel was elected secretary and treasurer, and Mark Shields, executive secretary. B. H. Smyers, Jr., was appointed counsel.

The following men were named to represent the association on American Gas As-

sociation managing committees: Accounting Section—H. D. Borger, The Peoples Natural Gas Co.; Industrial & Commercial Gas Section—P. W. Craig, Equitable Gas Co.; Residential Gas Section—W. L. Hutcheson, The Manufacturers Light & Heat Co.; Operating Section—A. B. Lauderbaugh, The Manufacturers Light & Heat Company.

New A. G. A. appliance requirements published

NEW REQUIREMENTS for water heaters, room heaters, incinerators and gas hose for portable appliances have been distributed by American Gas Association Laboratories. The new requirements became effective on January 1, 1950. Effective on the same date were new addenda to requirements for ranges, central heating appliances, hot plates and laundry stoves, and gas valves.

The room heater and gas hose texts formerly were known as those for space heaters and flexible gas tubing. Recessed heaters, formerly covered under the space heater requirements, are now covered in the new addenda to central heating requirements.

Water heater and room heater standards are revised and brought up to date in the new edition. The new incinerator text represents a complete revision of the old requirements which were formulated before the development of the incinerator in its modern form.

The gas range addenda provide for the approval of models with single point ignition. They clarify wash boiler combustion test procedures which also apply to hot plates and laundry stoves. The gas valve addenda present recommended dimensional specifications for range top burner valves, a step toward standardization and interchangeability.

New requirements covering approval of central heating appliances for installation at reduced clearances are well advanced and soon should be ready for adoption. Proposed standards now being circulated for industry criticism include necessary revisions to establish two types of water heater requirements. It is proposed to make 160° delivery temperature the dividing line and employ separate requirements for water heaters delivering hot water above this figure. The latter class would be for use with dish washers, sterilizers and similar equipment using water at temperatures higher than normally required.

IGT offers two-year gas industry fellowships

INSTITUTE OF GAS TECHNOLOGY, as a part of its educational program, is offering 16 two-year fellowships effective September, 1950, to qualified college seniors and graduates. The grants are designed to prepare a selected group for careers in the gas industry through graduate study, field training and research leading to the degree of Master of Gas Technology.

Students in the upper fifth of their classes in chemistry, chemical or mechanical engineering or related fields may apply. Additional qualifications include United States citizenship, age under 28, adaptability, co-operation and high moral character. Fellows will be paid a cost-of-living stipend, currently \$125 in each of the ten months of the academic year in addition to the remittance of tuition and fees amounting to approxi-

mately \$550 per year.

Gas industry employment during the summer preceding entrance in the Institute is available, and accepted candidates are urged to utilize this opportunity for an early acquaintance with the industry. During this optional period and the required summer training periods, the fellows are paid by the cooperating gas companies an amount comparable to that paid cadet engineers. Application forms and further information may be obtained from the student's departmental chairman or from the director, Institute of Gas Technology, 3300 South Federal Street, Chicago 6, Illinois.

The Institute's research staff, employing the latest-type industrial equipment and specially designed research units, teach the courses in production, conditioning, trans-

mission, distribution and utilization of manufactured and natural gas, bringing the professional engineer's approach to the instruction. Supplementary courses in pure science, engineering and economics are given by the staff of the Graduate School, Illinois Institute of Technology, which grants the degrees. Summer field training, weekly seminars with industry representatives and research on gas industry problems provide specialized experience and background.

The fellowships provide for the two years of study, including one summer training period and a thesis, which are required for the Master of Gas Technology degree. Fellows demonstrating marked ability may apply for a second two-year fellowship, carrying a greater stipend, to continue through the doctorate.

Potter named president of Elizabethtown

W. S. POTTER has been elected president of Elizabethtown Consolidated Gas Co., Elizabeth, N. J., succeeding John Kean who died last October.

Other officers of the company are: John Kean Roosevelt, chairman of the board; Henry Rohrs, vice-president and treasurer; Robert W. Kean, Jr., assistant treasurer; Henry W. Crane, secretary, and W. S. Aiken, assistant secretary.

Mrs. Mary N. Hall, who joined the company in 1930 as home service director, has received the additional title of director of domestic sales. Mrs. Hall is currently a member of the Home Service Committees of

American Gas Association and New Jersey Gas Association, and also of the A.G.A. Gas Laundry Equipment Committee.

The new president, Mr. Potter, joined the company in 1911 as an accountant. He was made assistant treasurer in 1929, treasurer in 1933, vice-president and treasurer in 1941, vice-president in 1949, and president on January 10, 1950. Mr. Potter is a member of American Gas Association and a past-president of New Jersey Gas Association.

Mr. Rohrs joined the company in 1930 as a house heating engineer. He was made assistant to the vice-president in 1947, treasurer in 1949, and vice-president on January

10, 1950. He is a graduate of Lehigh University and a past-president of The Metropolitan Gas Heating and Air Conditioning Council. He is also a member of American Gas Association.

Robert W. Kean, Jr. was appointed assistant treasurer and a director of the company in 1949. Mr. Kean is a graduate of Princeton University.



W. S. Potter

Two gas men advanced by Philadelphia Electric

APPOINTMENT of W. C. Pierson as general superintendent of Philadelphia Electric Company's gas transmission and distribution department was announced on December 30, 1949. He succeeds the late Paul Fusselman.

Mr. Pierson was employed by the utility in 1924, the year of his graduation from Pennsylvania State College as a chemical

engineer. Since that time he has filled various posts in the company's gas department and in the appliance service department. Prior to his new appointment, he was general superintendent of the building management department.

Samuel Sanders, Jr. was named assistant general superintendent of the gas transmission and distribution department. A gradu-

ate of U. S. Naval Academy at Annapolis, Mr. Sanders was employed by Philadelphia Electric Company in 1924 as a cadet engineer in the gas distribution department and was subsequently named to increasingly important positions.

Mr. Pierson and Mr. Sanders, the two Philadelphia Electric Company appointees, are both members of American Gas Association.

Transcontinental elects two vice-presidents

ELECTION of Dr. Ionel J. Gardescu and Curtis Morris as vice-presidents of Transcontinental Gas Pipe Line Corporation has been announced by Claude A. Williams, president.

Dr. Gardescu, formerly professor of petroleum engineering at University of Pittsburgh, has been associated with Standard Oil Company (N. J.) as a geologist, with Gulf Research & Development Corp., with the Texas Company as senior petroleum engineer and geologist, and with Ralph E. Davis,

consulting gas engineer. He will be in charge of gas reserves for Transcontinental Gas Pipe Line Corporation which he joined a year ago.

Mr. Morris has been engaged in tax and legislative work in Texas, and for the past two years has represented the Governor of Texas in Washington, D. C. in the active campaign of the states to maintain their ownership of coastal submerged lands. In his new post as vice-president he will be in charge of public relations for Transcontinental Gas Pipe Line Corporation.

Rutherford heads Worcester Gas Light

R. J. RUTHERFORD has been advanced to president, Worcester Gas Light Co., Worcester, Massachusetts. Active in American Gas Association for many years, Mr. Rutherford is currently chairman, A. G. A. Committee on Domestic Gas Research, and a past-chairman, A. G. A. Residential Gas Section.

A graduate of University of Illinois in mechanical engineering, he started his utility career as a cadet engineer with Public Service Co. of Colorado in Denver. Later he served

as a field engineer for the research institute, Combustion Utilities Corporation and Surface Combustion Corporation. He then served as assistant to the vice-president and after that as sales manager, Gas Utilities, Inc., Columbus, Ohio.

He later became vice-president and general manager, Union Gas and Electric Co., Bloomington, Illinois.

In 1931, Mr. Rutherford was made assistant to the vice-president and general

manager, New England Gas and Electric Association, and later gas sales manager of that organization. In 1936, he was made vice-president, Worcester Gas Light Co., a position which he held until December 27, 1949 when he was elected president.



R. J. Rutherford

Commonwealth Services promotes Wardell

CJUDSON WARDELL has been appointed assistant comptroller, Commonwealth Services, Inc. He has been connected with the company or its predecessors for more than 25 years.

During the past several years Mr. Wardell has been extremely active in the Accounting Section, American Gas Association. He has served on the General Accounting and Internal Auditing Committees, and is currently co-chairman of the Section's Accounting

Development Service Committee.

During the early period of his employment with the company he was assigned to treasury and accounting work. Later he was placed in charge of the accounting department in New York until July 1, 1944 when he became assistant to H. B. Hardwick, now comptroller of Consumers Power Co., Jackson, Michigan.

On September 1, 1948, Mr. Wardell was placed in charge of methods and systems

work. As assistant comptroller he will be in charge of the Jackson treasury, secretarial, accounting, payroll, methods and auditing staffs, work of which will be performed in Jackson for both the New York and Jackson divisions.



C. J. Wardell

Boston names gas personnel changes

MAJOR personnel and organization changes in Boston Consolidated Gas Company's production, distribution and engineering departments have been announced by E. H. Ecker, president of the company.

Andrew W. Johnston, formerly with Washington Gas Light Co., Washington, D. C., has joined Boston Consolidated Gas Company as engineer of distribution, and Henry R. Condon, formerly superintendent of mains and supplies, has been promoted to assistant engineer of distribution.

Frank L. Corcoran, who has been in the production department since 1942, has been promoted to engineer of production and construction. James W. Penney, Jr. has become

assistant superintendent of the company's Everett Plant.

M. Frank Knoy has moved from the research department of Eastern Gas & Fuel Associates to become the newly-appointed chief technical engineer for Boston Consolidated. Warren E. Churchill, formerly chief chemist, is the new assistant technical engineer.

Other promotions named Harold K. Emmons as chief chemist and Arthur E. Garber as assistant chief chemist. Bertwell M. Whit-



A. W. Johnston



Frank L. Corcoran



M. Frank Knoy

ten, formerly designing engineer in the construction department, has been promoted to technical assistant at the Everett Plant.

All four gas men are members of American Gas Association.

Panhandle elects former Secretary of War

JUDGE ROBERT P. PATTERSON, former U. S. Secretary of War, was elected a director of Panhandle Eastern Pipe Line Co., Kansas City, Mo., on January 16, 1950.

A graduate of Union College and Harvard Law School, Judge Patterson developed a distinguished career in the nation's courts,

culminating on July 31, 1940 in his appointment as Assistant Secretary of War, and later as Under Secretary of War. For his contributions to the defeat of Germany and Japan, he was awarded the Distinguished Service Medal by President Truman on September 18, 1945.

On September 18, 1945 he was nominated by the President to become Secretary of War and was sworn in on September 27, 1945. He retired in July 1947 and is now a member of the private law firm of Patterson, Belknap & Webb, New York, New York.

Kennedy heads new department at Servel

PAUL KENNEDY has been appointed director of retail sales development for Servel, Inc., Evansville, Indiana. Mr. Kennedy has been handling Servel's training and selection program as a part of the advertising and sales promotion department.

The new department will be responsible for the development of creative retail sales methods, procedures for hiring and training of retail salesmen and the development of sales training programs.

Previous to his association with Servel,

Mr. Kennedy was supervisor of sales promotion for Equitable Gas Co., Pittsburgh, Pennsylvania.

The new department will be under the direct supervision of Fred Keune, assistant general sales manager.

Connecticut Light and Power changes

THE FOLLOWING organization changes have been made by The Connecticut Light and Power Company. J. E. King, operating vice-president, has retired following more than 41 years with the company and its predecessors. Sherman R. Knapp, formerly assistant to the president, has been elected executive vice-president, and Calvin T. Hughes, formerly general superintendent, has been elected operating vice-president to succeed Mr. King. Walter W. Forman, formerly assistant general superintendent, succeeds Mr.

Hughes as general superintendent.

Mr. King joined the company in 1919 as distribution engineer. In 1928 he was appointed operating superintendent, in 1937 general superintendent and in 1939 was elected operating vice-president.

Mr. Knapp joined the company in 1928 after graduation from Cornell University. He was appointed assistant to the president in May 1948.

Mr. Hughes has been with the company 31

years. A graduate of University of Oklahoma, he joined the company in 1918 as cadet engineer. In 1939 he was appointed general superintendent.

Mr. Forman is a graduate of Stevens Institute of Technology. He joined The United Gas Improvement Co., Philadelphia, in 1927 and in 1929 moved to The Connecticut Light & Power Company as general engineer. Mr. Forman was appointed assistant general superintendent in 1943.

Portland Gas announces personnel changes

DIRECTORS of Portland (Ore.) Gas & Coke Company have accepted the resignation of C. W. Platt as secretary and treasurer and elected C. V. Griffith treasurer and assistant secretary and H. N. Burnside as secretary and assistant treasurer.

Mr. Platt, identified with the company since 1910, joined its predecessor, Portland Gas Co., in 1909 as an accountant. He was elected assistant secretary and assistant treasurer in 1912 and secretary, treasurer and a director in 1924. He will continue as a director and also will continue to serve Lewis and Clark College as a trustee and secretary of the board of trustees. He is a member of American Gas Association. Mr. Platt is a

past-chairman of the accounting section, Pacific Coast Gas Association.

Mr. Griffith is a 24-year veteran, having joined the company as an accountant after graduating from Washington State College. He was named chief accountant in 1943 and was elected assistant treasurer in 1948. He is a past-president, Portland chapter, National Association of Cost Accountants.

Mr. Burnside, also a 24-year veteran,



C. W. Platt



C. V. Griffith



H. N. Burnside

was assistant to the secretary and treasurer from 1936 until 1948 when he was elected assistant secretary. He is a graduate of Northwestern College of Law.

Manufacturers Light and Heat promotes

SEVERAL PROMOTIONS and a retirement among supervisory personnel of The Manufacturers Light and Heat Co. were announced recently by E. D. Clutter, general superintendent.

F. H. Sochor, chief civil engineer and head of the company's civil engineering department, retired from active service on December

31 after 21 continuous years of gas company employment. Mr. Sochor had been chief civil engineer since 1938. He is succeeded as chief civil engineer by J. A. Loudon who has been in the department since 1928.

Robert M. Neill, staff member of the civil engineering department since 1937, is the gas

company's new assistant chief civil engineer. H. R. Weitzel, power engineer in the gas engineering department, is the new assistant superintendent of compressor stations. D. K. Ruth, since 1948 in charge of constructing the company's new short wave radio system, has been named engineer of communications.

Parrott receives new post at Ebasco

W. E. PARROTT has been appointed a general consultant of Ebasco Services Inc., New York, N. Y. Mr. Parrott had been serving as manager of the sales and market department before his most recent appointment.

He started his utility career in 1919 and

after broad experience in the sales, accounting and operations field, joined Ebasco Services in 1935 as sales sponsor for the Northwest group of client companies. In 1941 Mr. Parrott was made manager of the sales and marketing departments. He is a member of American Gas Association.

Paul D. Brooks has been appointed manager of the sales and marketing department to succeed Mr. Parrott. Mr. Brooks joined the sales department in 1938 as southwest sales sponsor. In January 1944, he was appointed assistant manager of the sales and marketing department.

Manufacturers announce personnel changes

The Silex Co., Hartford, Connecticut—Monroe G. Smith of Stamford has been appointed general manager and Frank E. Wolcott, general sales manager. These appointments were made following the death of Louis S. Chick, president of the company.

Detroit-Michigan Stove Co., Detroit—Otis R. Candler has been named vice-president in charge of all-manufacturing operations. Mr. Candler started with the company in 1926 as assistant superintendent and was made factory manager in 1942.

L. E. Clancy has been appointed director of sales. He was formerly sales manager of the company's Garland commercial range division and is currently a member of American Gas Association. Paul Inskeep, formerly central division sales manager, is now sales manager of the Garland commercial range division. He is also a member of American Gas Association.

The Tappan Stove Co., Mansfield, Ohio—C. W. Bonar, formerly sales training director, has been promoted to the newly-

created post of manager, LP-gas division. M. J. Daugherty, formerly assistant to the promotion manager, has been promoted to sales training director. G. S. Condos, director of public relations, has been assigned increased responsibility as assistant director of merchandising.

The National Supply Co., Pittsburgh—Ernest N. Smith, prominent figure in the oil and gas industry, retired last month after 28 years with the company. Mr. Smith has been active in American Gas Association and American Petroleum Institute.

Van Packer Corp., Chicago—Chester A. Pynn, for the past two years, president of Homcrafts, Inc., Floral Park, Long Island, distributors of heating equipment, has been made vice-president in charge of distribution of the Chicago concern, manufacturers of precast chimneys.

Mr. Pynn had previously served seven years as manufacturer's agent in Newark, N. J., for A. O. Smith Corp., Milwaukee, producer of automatic storage water heaters. During the war, he was New Jersey

State director of job relations training with the War Manpower Commission. He has been active in Gas Appliance Manufacturers Association.

Florence Stove Company—Herbert M. Reeves, chief engineer of the Kankakee, Ill., plant, has been promoted to the newly-created position of director of product engineering for the company. Mr. Reeves is a member of Subcommittee on Approval Requirements for Domestic Gas Ranges, American Gas Association.

M. M. Hedges Manufacturing Co., Inc., Chattanooga, Tennessee—L. T. W. (Tim) Timberlake has joined the company as manager, utility sales division. Mr. Timberlake has been active in gas utility sales since 1922. The utility sales division results from his conviction that the firm should market an automatic gas storage water heater especially designed for gas utility requirements and distributed only to the gas utilities. The result is the new Hedges line of automatic storage gas water heaters.



A. B. Harper

president, Fort Smith Gas Corp., Arkansas-Oklahoma Gas Co., both Fort Smith, Ark., died in his room in a New York City hotel on January 25, 1950. Considered one of the outstanding men in the public utilities field in the Southwest, Mr. Harper was a member of numerous trade organizations and a past-president, Independent Natural Gas Association of America. He was also a past-president of Arkansas Utilities Association.

Mr. Harper was active in development of the big gas fields which gave Fort Smith an industrial boom in 1915 and 1916, later becoming the controlling figure in the gas re-

sources and distribution system in Fort Smith. Last summer he was elected president of the new Louisiana Natural Gas Corporation in Shreveport, La., which started operation of a war-built natural gas line in Southwestern Louisiana.

Surviving are his wife, Mrs. Crystal Harper, and a son, Ned Harper.

Harry G. Waterbury

who was associated for many years with Stamford Gas and Electric Company and with the Stamford division of Connecticut Power Company after it acquired Stamford Gas, died in his home on January 3.

Mr. Waterbury joined Stamford Gas in 1897 and was secretary-treasurer when the company was sold to Connecticut Power. He retired in 1937 as secretary of the Stamford division but remained as a member of the division committee until 1945.

Surviving are his wife, Mrs. Mary Clark

Waterbury; a daughter, Miss Beryl C. Waterbury, and a sister Miss Maud Waterbury.

J. Carl Fisher

manager of the Customer Relations Department, Consolidated Gas Electric Light and Power Co. of Baltimore, Md., died suddenly at his home early last month.

Mr. Fisher had been connected with the company since September 1919 when he was made a commercial engineering representative. In 1943 he was made manager of the customer relations department. Since 1943 he had been the treasurer, Maryland Utilities Association.

He was a graduate of Washington and Lee College and also of Massachusetts Institute of Technology.

He is survived by his wife, Mrs. Margaret Reider Fisher and two daughters, Mrs. Bernhard A. Bang, of Silver Springs, Md., and Mrs. H. Chesley Decker of Baltimore.

Gas load study

(Continued from page 47)

connected to a demand register. Its position will then be shifted so that it can actuate a graphic demand meter for the twelfth month.

These demand devices contain an electric timing motor, similar to those used in electric clocks, which resets the advancing mechanism to zero every half-hour. The motor operates on 120-volt, 60-cycle alternating current. Power is supplied from the service side of a nearby a.c. watt-hour meter. It passes through a bell-ringing transformer which reduces the voltage from 120 to 24 volts. A flexible duplex lead from the low voltage side of the transformer runs to a second transformer, mounted on the gas meter, which steps the voltage up to 120 again.

The actuating force for the register mechanism is obtained directly from the gas meter on which it is mounted. This is done by coupling a chain-drive to a shaft which is inside the gas meter and which normally is used only to drive the gas meter index. The motion of this shaft is transmitted through a stuffing box to the right-angle gear box placed on the outside of the gas meter.

Graphic demand meters used in the study are normally actuated by electric impulses received from contactors in electric watt-hour meters. They were modified so that they could be driven directly by a gear train from the right-angle gear box.

The demand devices are mounted by means of specially designed brackets soldered to each gas meter under study. The stuffing box had to be placed in exact relation to the mounting brackets and the index shaft of the gas meter. Special jigs were designed for locating the stuffing box hole and the mounting brackets on the meter case. These jigs assured accurate mounting dimensions and speeded the assembly operation.

The modifications necessary to adapt the standard gas meters to this study were made by the Gas Meter Repair Shop. The gas meters were then tested and sent to the Electric Meter Shop where the demand registers and transformers were mounted.

Enough meters for a complete day's work were carried on each truck. Field work was done by teams of two men, one a gas serviceman and the other an electric meter tester. Through this team-

work, installation was completed in one visit to each customer's premises.

Meter Bureau men make periodic inspections at each of the 800 test installations and obtain readings of gas consumption and demand. They also replace charts on the graphic demand meters during their one-month use.

Demand values on the charts are automatically transcribed by means of a device developed for previous load studies and found useful in these tests.

Home service 1960

(Continued from page 45)

changes. The other day I read where a whole town was installing disposal units, which illustrates what most American homes will be ten or 20 years from now.

As in any other field of endeavor, success for the home engineer economist requires creative initiative and effort. To basic knowledge of food must be added more and more knowledge of the "why" and "how" of appliances. It no longer suffices to know "what" the changes are.

Above all, do not overlook fellow sales workers—appliance salesmen, servicemen, turn-on and shut-off men, meter readers—any and all of your fellow employees. Meet with them, invite them to demonstrations, share your "whys" and "hows" with them. They will help you anticipate and prepare for Mrs. Jones' and Mrs. Smith's woes and worries.

Instead of too many cooking schools and single demonstrations, plan to set up comparative demonstrations—a sort of "before" and "after"—which will show the "whys" and "hows" of new appliances as compared to the ten to 20-year-old ones still in use.

Recently marketing people were the target of pointed criticism because in their polls, questionnaires and surveys they were missing the "why" and "how" behind the "what" in their study of the influences responsible for consumer buying habits. What better marketing educators are there in industry than the home engineer economists!

What better sales medium could one want than home service? Here, in its own organization, management has a well-trained unit, helpful to and willingly accepted by customers.

It has been said that the great force in load building is to meet the needs of the customer. Need I answer that the great force—both in number and ability—to meet the needs of domestic customers is the home engineer economist.

CONVENTION CALENDAR

1950

MARCH

- 23-24 • New England Gas Association, Hotel Statler, Boston, Mass.
- 27-29 • A. G. A. Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.
- 27-29 • Southern Gas Association, Galveston, Texas
- 31 • The Maryland Utilities Association, Lord Baltimore, Baltimore, Md.

APRIL

- 3-5 • A. G. A. Distribution, Motor Vehicle & Corrosion Conference, Book Cadillac Hotel, Detroit, Mich.
- 4-6 • A. G. A. Sales Conference, Industrial & Commercial Gas Section, Chase Hotel, St. Louis, Mo.
- 10-12 • Mid-West Gas Association, Hotel Lowry, St. Paul, Minn.
- 11-13 • Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla.
- 17-18 • A. G. A. Eastern Natural Gas Regional Sales Conference, Hotel William Penn, Pittsburgh, Pa.
- 17-19 • National Conference of Electric and Gas Utility Accountants, Brown Hotel, Louisville, Ky.
- 20-22 • Florida-Georgia Gas Association, annual business conference, Biltmore Hotel, Palm Beach, Fla.
- 25-26 • A. G. A. Domestic Gas Research and Utilization Conference, Hotel Statler, Cleveland, Ohio
- 28-29 • Indiana Gas Association, French Lick Springs Hotel, French Lick, Ind.

MAY

- 1-5 • A. G. A. Commercial Gas School, Hotel Gibson, Cincinnati, Ohio
- 4-5 • Oklahoma Utilities Association, annual convention, Biltmore Hotel, Oklahoma City, Okla.
- 8-9 • A. G. A. Natural Gas Department, Spring Meeting, Mayo Hotel, Tulsa, Okla.
- 8-12 • American Foundryman's Association, Cleveland, Ohio (A. G. A. will exhibit).
- 16-18 • Pennsylvania Gas Association, Galen Hall, Wernersville, Pa.
- 22-24 • A. G. A. Production and Chemical Conference, Hotel New Yorker, N. Y.
- 23-26 • National Restaurant Association, Navy Pier, Chicago, Ill. (A. G. A. will exhibit)
- 25-26 • The Natural Gas and Petroleum Association of Canada, annual convention, Prince Edward Hotel, Windsor, Ontario
- 28-30 • GAMA annual meeting, The Greenbrier, White Sulphur Springs, W. Va.
- 29-31 • Fifth Annual Short Course in Gas Technology, Texas College of Arts and Industries, Kingsville, Texas

Personnel service

SERVICES OFFERED

Gas Sales Engineer—Twenty years' experience including New Business Manager in charge sales and engineering in Utility Companies. Also with Manufacturers of heating equipment and domestic gas appliances. Qualified in dealer contact work including selling, service, and engineering. Desires position Metropolitan area New York City. 1636.

Employee and Public Relations—Well rounded experience in analyzing public opinion and developing programs. Over three years' publicity, presentations, speaking, radio, meetings, etc. Eight years' previous experience in industry. Administrator and supervisor. Engineering degree. 1637.

Distribution Engineer—Wide experience in design, extension, maintenance high and low pressure distribution systems large area; regulator installation, operation and maintenance; training and supervision of customer service, street department and office personnel; operation and maintenance of steam and gas driven pumping stations and wet and dry holders. M.E. (46). 1638.

Industrial Relations—Ten years' experience: services to operating management, supervisory and job training, labor laws, employee booklets, policies, procedures, benefit plans, wage studies, administration of collective bargaining agreements, research, reports. College

graduate, skilled writer with legal training, married. (44). 1639.

Chief Engineer—Desires connection organization manufacturing gas, oil fired domestic heating equipment. Must be position to back up engineer with necessary facility to do real engineering job. 24 years' experience; can take full charge of design, development, testing, obtaining approval new models. Location not important to right organization. (43). 1640.

Fuel Technologist—B.S. 1950—Pennsylvania State College—seeks opportunity in production or control work in gas industry. Northeastern area preferred. (22). 1641.

Combustion Engineer—Wide natural and manufactured gas experience in regional and industrial plant surveys and reports showing costs versus competing fuels, using live, specific information on Utilization in American Industry. 1642

POSITIONS OPEN

Home Economist for a new Home Service Department for a gas company in middle west. State qualifications and experience, age, salary expected, and enclose picture. 0572.

Eastern Manufacturer of steel furnaces and furnace pipe and fittings seeks **plant manager** capable of directing all phases of plant ac-

tivity—production, administration, design, engineering, and selection of tools and dies, and product development. Must be experienced in design, engineering, testing, installation, and servicing of gas, coal, and oil fired furnaces. Write for appointment stating in detail past experience, education, references, and remuneration expected. 0573.

Controller—Medium size natural gas utility in mid-southern city has opportunity for accountant who has held position of Assistant Controller or is well versed in all phases of utility accounting, procedures, statistics, and budgets. Must have executive ability and desire to put forth tremendous effort to put into effect proper accounting procedures in this progressive utility. Reply will be received in strictest confidence, and should include resumé of education and experience and salary requirements. 0574.

Gas Engineer to take charge of production and maintenance in a medium size, modern water gas plant using heavy oil. Combination company located in Southern New England. Ability to train and handle men, maintain good housekeeping and keep equipment in proper repair through a preventative maintenance program—essential requirements. Excellent opportunity for experienced man. Reply fully giving age, education, experience, references, salary required and enclose snapshot. All replies strictly confidential. 0575.

Heating load

(Continued from page 40)

cerned. In our business, we see these differences very clearly. We know of one situation where, when added gas supplies were available, all of this gas was sold promptly. Still another situation exists where the gas company determined how many additional gas heating installations they were going to have gas for and they allotted these installations evenly over the 12 months of the year. Because of an active program of promotion all of these installations were made regularly, month after month, and consequently the gas available for heating was completely sold.

However, another situation exists with comparable rates where the gas company found they were able to sell only one-third of the gas released for heating.

In still another situation the gas company released an added quantity for heating and were able to sell only half of the installations involved. Remember, circumstances alter results. Natural gas is not a cure-all and the public cannot be expected to gang up and take it away from you. This will be especially true in the Northeast where gas rates undoubtedly will be higher than in other parts of the country. This is to be expected because the farther you are from the natural gas fields, the greater the cost

in delivering the gas.

Another important factor is that it will be several years before a sufficient quantity of natural gas is available in New England to permit the distribution of straight natural gas to customers. Therefore, as natural gas comes to the area it will come by steps—as more pipelines are added and as pipeline capacities are increased. This means that the full benefit of natural gas cost cannot be immediately applied to gas rates.

People who thought that the removal of gas heating restrictions was all that was necessary to sell all the gas available are finding themselves sadly mistaken.

In addition to this word of caution, remember the responsibility involved with the advent of natural gas.

To get natural gas to the Northeastern part of the country requires an expenditure of a couple of hundred million dollars. Somebody still has to account for that much money. Not only is the full capacity of the line available, once it is turned on, but it is important to remember that it will not be possible to profitably dispose of all of this gas without house heating and a lot of it.

These house heating sales cannot be made overnight. The selling program must be started well in advance, just as the commitments for the pipeline and the gas involved must be made in ad-

vance. Therefore, while it may not have happened yet, I predict that one of these days gas men will be told of their responsibility to sell a pipeline full of gas for residential heating and the pressure that will be exerted for this result will be tremendous.

Remember, too, that at the time this takes place the competition will be many, many times stronger than it is today.

Yes, we are going to have to face lots of problems and reach many decisions.

If the public thinks that gas is the fuel of the future, if they think that gas is the glamour fuel of today, if they think that gas has got it and want to know more about it, then tell them. Don't let them down. Don't overlook the greatest advantage that has ever existed to sell gas.

Let's revive our gas heating sales organizations. Let's strengthen them, educate and train them and have our sales ammunition, as well as the salesmen who will use it, equipped for battle.

Let's get our dealers primed and ready for the great opportunity natural gas will mean to them. Let's educate them, train them and sell them on the gas idea.

And, in the meantime, while we are waiting for the ultimate, let's sell gas heating. Let's sell the gas we have now at the present rates. If we can do this, we can be sure that we can sell natural gas when it arrives.

American Gas Association

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